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August 2005
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No. 8
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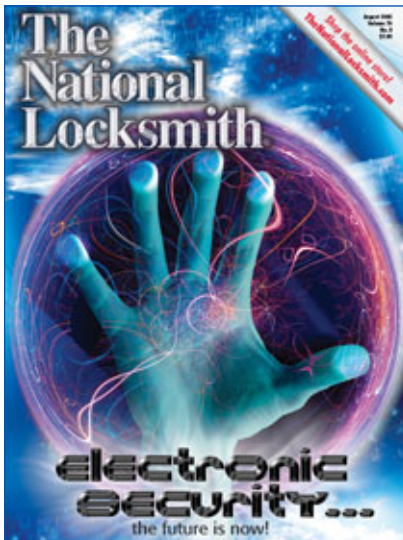
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On The Cover...



The convenience of electronic security and demand for electronic ADA compliant access control is evolving at an accelerated rate. It is the wave of the future, and that time has come.

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When Locksmiths go to the Dark Side

It doesn't happen often. But you have bad apples in every bunch. Here is a report from thedenverchannel.com.

DENVER — Denver police have arrested a man suspected of burglarizing hundreds of homes in the Denver area.

Jeffery Trott, a five-time convicted felon, was arrested again on Monday outside his Capitol Hill apartment. He's suspected of stealing hundreds of thousands of dollars in guns, electronics and other property.

"We think that Trott was responsible for at least 100 burglaries a year," said Denver Police Chief Gerry Whitman at a Tuesday afternoon news conference. Trott reportedly told police that he's responsible for hundreds of burglaries in the Denver metro area and some of his victims may not even know that they've been burglarized, 7NEWS reported.

"He was a locksmith and could actually make keys and pick locks," said Ray Brown, an agent with the Bureau of Alcohol, Tobacco, Firearms and Explosives.

Police say he's not a typical burglar — he's a professional who also picked locks and safes, which gave him access to expensive items and heirlooms such as collectible coins and silver. Trott started burglarizing homes in the 1970s and continued in the 1980s and in 1991, when he was caught by a Denver officer, police said. It was that officer's son — also a Denver officer — who caught him in the act again this time, 7NEWS reported.

"I was pretty familiar with his MO, which is very specific and unique," said Denver police Sgt. Michael Pace. Pace said he recognized Trott's modus operandi because in college he wrote a paper on the serial burglar when his father, a Denver police detective, was investigating Trott's burglaries.

Police said Trott would stick a small, clear plastic tab in the doorjamb of homes he was casing. Then he would watch the homes and if the tab was still there a day or so later, then he knew the people who lived there weren't home.

"He was a very careful burglar. He knew his trade and he did it well," said Bill Pace, now a retired Denver police detective. Michael Pace said that when he saw the plastic tabs at the site of the burglaries, he knew Trott was their man.

"It was disappointing to them to have him out of jail and out on the streets doing the same thing that they stopped him from doing before," Michael Pace said. Investigators are now poring over dozens of boxes in Trott's apartment and storage unit, cataloging all of the suspected stolen items. The boxes are filled with hundreds of items, including cameras, computer laptops, jewelry and personal identification, including passports and driver's licenses.

"When you look at these bags of jewelry, it's unbelievable," Whitman said. "There's 47 Ziploc bags of small jewelry items."



***Have questions? Want free technical help?
Free Locksmith Forums!***

www.TheNationalLocksmith.com

Marc Goldberg
Publisher

Mango's Message

The Skeleton Key

A few months ago I did an editorial titled *"The Auto Slayer"* where I said that every once-in-a-while a story, photograph, or joke crosses my desk that is just a classic. Well, so far this is becoming a bumper year for the wild, the weird and the wacky.

This story is one of those once in a lifetime occurrences that is sure to become a locksmith legend, only this one is true.



1. John Somers holding the X-ray.

John Somers, of Al's Lock and Safe in North Platte, Nebraska is the worlds most recognized and popular locksmith. Why you may ask? Because recently, John has been on more radio stations and television shows than any other locksmith may have ever been in the documented history of mankind! And, I am very proud to report that the world's most recognized and popular locksmith subscribes to none other than *The National Locksmith*. That's right, I have friends in high places.

Once Upon a Time...

Arthur Richardson and Andrew Allen swaggered into Al's Lock & Safe in Nebraska and said they lost the key to their truck and needed a new one made. John Somers asked what type of truck they had and they said a 1977 Chevrolet pick-up truck.

John explained the process of making a new key for the truck and what it would cost to do it.

Both Richardson and Allen were a little short on cash that day and didn't have enough for the service. With a sense of urgency, they were looking for alternatives.

John then asked them what happened to the key, and Allen said, *"My friend here swallowed it!"*

John then said, *"No, he didn't swallow the key. What really happened to it?"* Allen said, *"Yes, he really swallowed it!"*

John asked if that was his only key and Allen said, *"Yea, and he swallowed it!"*

After drinking a *"couple of beers,"* Richardson said he was pulling a prank on Allen and popped the key in his mouth to pretend to swallow it, but then actually did. Richardson then attempted to discharge the key by vomiting, to no avail.

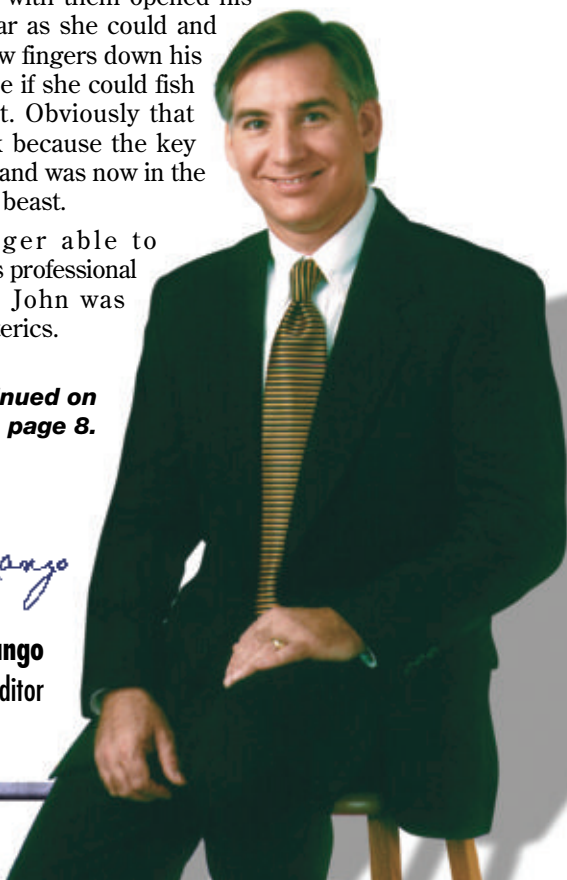
After Richardson failed to discharge the key, in a panic a young lady with them opened his mouth as far as she could and shoved a few fingers down his throat to see if she could fish the key out. Obviously that didn't work because the key went down and was now in the belly of the beast.

No longer able to maintain his professional demeanor, John was now in hysterics.

**Continued on
page 8.**

A handwritten signature in blue ink that reads "Greg Mango".

Greg Mango
Editor





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Circle 307 on Rapid Reply

Continued from page 6



2. The skeleton key X-ray.

After he composed himself, John then told them they didn't have much choice if they wanted a key made.

After conversing a little more Richardson commented that the key is defiantly down there and wasn't hurting him or anything. John asked, *"What do you mean it's not hurting you or anything?"*

Richardson said that after the occurrence he went to Great Plains Regional Medical Center for an X-ray to make sure the key didn't puncture his stomach or intestines.

Off-handedly John asked if he had a copy of the X-ray and Richardson said he did. John said, *"Your kidding, you do? Well bring the X-ray back and maybe I can make a key from the X-ray."*

Allen and Richardson left and came back later with a copy of the X-ray. John held the X-ray up to the light and said it was an absolutely perfect silhouette of a GM key. *"Any locksmith worth his salt could have made that key,"* John said. *"They just happened to walk into my store."*

O.K., here's a quick quiz. What's the biting of that key? You have 10-seconds. Go... See the answer key in the end.

Not knowing which broaching the key was, John clipped the key on a GM universal blank. He then went to the truck, threw it into the ignition and started it right up.

John said he didn't charge them for the service. Instead, he bartered for the X-ray and plans to make tee shirts from it with some clever verbiage to advertise his business. Shirts are available at: www.alslockandsafe.com.

This story has crested well beyond the locksmith industry. Radio stations from San Diego, CA, Oregon, Ft. Collins, CO, Amsterdam, Holland, television shows such as, the Today Show, MSNBC, The Letterman show, Fox news, CBS, and ABC Good Morning America, just to name a few, have all lifted the story from the Associated Press (AP) wire and it's spreading like wildfire.



3. John Somers, left, Arthur Richardson, center, Andrew Allen, right.


"We're having a blast," John said. *"It's our 15-minutes of fame and we're having fun with it."*

This story reminds me of a unique experience my wife Rachel had while working at J. Ross Boles

in San Antonio, TX. Besides being famous for the Alamo and its river walk, San Antonio enjoys a very lively Hispanic culture. One day an elderly gentleman walks into the store and asks her if she can make a key for him. She said sure, so he pulls out a folded up tortilla with an imprint of a key blade on it without the head. Unfortunately, Rachel wasn't as lucky as John was. Without the head of the key to identify it, and by the time this gentleman arrived with his tortilla in hand, the once soft impressionable tortilla had begun to harden and crumble, foiling her attempt to fulfill his request. Sometimes you're a hero, sometimes you're not.

In the aftermath, skeleton key man Richardson purchased some Milk of Magnesia and the original key passed from his system a few days later. At least this story has a happy ending, and it's good to know that everything came out all right in...

The End!

Answer Key: 242123 



4. Recording set-up and interview for the Today Show.



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Circle 303 on Rapid Reply

LETTERS

A Detex Icon

Ernie Kaufman—1933–2005

Detex Corporation regrets to announce the passing of a long time employee and friend to many in the door hardware and guard tour verification industries. Ernie Kaufman passed away on June 23, 2005.

In 1951, more than 54 years ago, Ernie came to work for Detex Corporation in New York, as a Watchman's Clock Repairman. In the early 1960's Detex introduced its Security Door Hardware Division, which incorporated exit alarms, exit control locks and remote indicating panels. Ernie became an integral part of this new company direction.

With a diploma from RCA Institute and two years of study in Brooklyn College, Ernie served as Sales and Service Manager for the company's New York office, a position that allowed him to expand on his natural ability to work with Detex representatives and distributors on the customers' behalf. He was promoted in 1981 to Regional West Coast Manager where his knowledge of that area's sales and distribution grew along with sales of the new products he so eagerly presented. In October 1982 Ernie returned to New York as the East Coast Regional Manager.

Over the years Ernie initiated a series of training seminars and certification classes covering Detex door hardware equipment. These seminars proved to be very popular and as a result, his title was changed to National Education Manager which coincided with his move to Reno, Nevada in 1989 with his wife Loretta.

Ernie once said, "While the industry has changed in many ways, my feeling is that the people have remained the same." To that feeling, Ernie remained true. He was dedicated and loyal to Detex, our industry, his many friends and the customers he served for 54 years.



old, but she has been doing locksmith work for literally all her life. She can rekey all types of locks, unlock cars, impression keys, cut keys by code, install locks, pull door panels, make car keys from scratch, pull steering wheels, program transponder keys, VATS, and a whole lot more. She is presently enrolled in the Foley Belsaw Correspondence school so she can become certified. She may be the youngest female certified locksmith ever.

With my daughter's help it only took us 18 hours to completely rekey 38 cars. Many of which were vats. My point is this. If you have a son or daughter, teach them the trade. Pass on your love and passion for locks and keys. Amy may never want to be a locksmith one day (and that's fine), but nothing can take away our time together, our memories, our laughter, our tears, and our bond.

Marc Grizzard
South Carolina

TRL

Teach Your Children

Thanks Jake for all of your great work in The National Locksmith and "Technitips." I look forward to each issue. Here is a little experience I had a few months back.

I received a call from a used car lot that was broken into, and 38 sets of keys were missing. Since I am a one-man operation, I grabbed my best tool of the trade—my daughter, Amy Grizzard. Amy is only 11 years



E-mail Your Views:
natllock@aol.com

Please include your first and last name.

The National Locksmith

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Attn: Editor

The National Locksmith is interested in your views. We do reserve the right to edit for clarity and length.

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Adrian Van Interiors

Adrian Steel Company has van interiors specifically designed for the security industry. Adrian's trade specific packages are designed to make the most of the work and storage space within your full size or mini van. Each trade package comes complete with ample shelving, cabinets, and a partition. *See us at ISC East Booth 1563.*



Aiphone IP Series Network Based Intercom

The IP-EWST offers voice-quality intercom function over TCP/IP based networks. Designed specifically to integrate seamlessly into a new or existing LAN / WAN infrastructure, the IP-EWST is capable of hundreds of stations, fulfilling a large variety of applications including commercial, industrial, and residential access control; general security, office, and institutional intercom / paging, and many more. Power over Ethernet (PoE) capability is also supported when using the IP-EWST-POE only, allowing greater installation flexibility for both new and retrofit applications. *See us at ISC East Booth 1800.*



Arrow Choice Plus Interchangeable Core System

Arrow Lock and Door Hardware of Hicksville, New York has introduced the Choice Plus interchangeable core system. The only patented interchangeable core that integrates with existing key systems having A through Q keyways, upgrades security and affords authorized key control. Choice Plus offers convenience and security, making even the best key system better!

Choice Plus features a patented core with an exclusive mechanism operational only by Choice Plus keys. Choice Plus keys operate competitive cores with the same keyway (A-Q), however, competitive keys will not operate Choice Plus Cores allowing dealers the flexibility to integrate Choice Plus Cores into existing key systems giving the user a higher level of security and key control. Choice Plus cores are available in 6 and 7 pin, combined and uncombined, standard and drill resistant. Choose from a variety of keyways: Competitive keyways A-Q, Arrow 1C and 1D, or consult Arrow for restricted keyways. Convenience, security and key control.



Biometric Time Clock

The HandPunch 50E provides the convenience of biometric hand geometry to positively identify up to 50 people. Manufactured by Recognition Systems, the biometric component of Ingersoll-Rand's (IR) Security & Safety Electronic Control Systems, the HandPunch 50E is Ethernet-enabled, eliminates buddy-punching, eliminates the need for timecards or codes, and is affordable and cost effective for all time and attendance applications.

Instead of having to fill out or punch a timecard, an employee simply enters an ID number and places a hand on the HandPunch 50E. The device automatically takes a three-dimensional reading of the size and shape of the employee's hand and verifies the user's identity in less than one second.

By featuring a built-in Ethernet port, businesses can insert the HandPunch 50E anywhere along their LAN/WAN where it will be most useful. It can be placed in several areas around a building or in branch offices separated by continents. Networked systems also provide centralized template management. Users can enroll at a single location and have their templates available at other locations. HandPunch 50E options include operational battery backup and outdoor enclosures. *See us at ISC East Booth 2162.*



Dortronics High Security Electric Key Switch

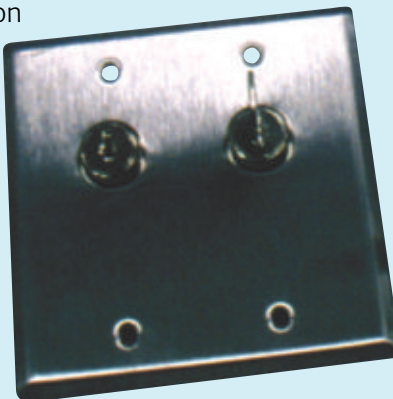
Dortronics Systems, Inc now offers an optional high security cylinder for its 5240 Series Electric Key Switches. The new device, model 5241-K65-HS High Security Key Switch, is keyed per order and may only be duplicated with authorized customer approval. It is ideal for use by customers who need an extra measure of security without implementing an entirely new system. The concept for the 5241-K65-HS High Security Key Switch resulted from one of the custom orders frequently fulfilled by Dortronics.

The Switch is available in a variety of models, including two gang and one gang plates for flush wall or surface box mounting and narrow plate for hollow metal or aluminum door frames. Key operation comes standard as one position, key removable, with SPDT K65 contact output.

Available options include a push button with SPDT P-15 or DPDT P-25 contact outputs, and an LED option with choice of bicolor and pushbutton features. The switch contacts are rated for 3 amps at 115VAC or 28VDC and the LED is rated at .02 amps at 24 VDC.

Installed 5240 Series Electric Key Switches, designed to restrict the use of electrically operated entrance control systems, alarms, electric locks and other devices to key carrying personnel, can be retrofitted with the new restricted keyway.

Custom engraved graphics on the brushed stainless steel plates is also available.



E-Plex™ E5031 Listed In BHMA Certified Products Directory

Kaba Access Control's E-Plex E5031 Series Lock is now listed in the BHMA Certified Products Directory for ANSI/BHMA A156.25 Electrified Locking Devices Grade 1. The E-Plex E5031 is the only pushbutton lock that is currently certified and listed in this BHMA Certified Products Directory category.

Kaba's new E-Plex 5000 Series is a programmable pushbutton lock with up to 100 access codes and a 3,000 event audit trail. The new E-Plex combines the simplicity and reliability of Kaba's Simplex mechanical pushbutton locks with the added security and features of electronic access control, proving that an electronic lock can be easy to install, manage and use.



Powerbolt Keyless Access System

The Kwikset Powerbolt 1000 touchpad electronic deadbolt puts keyless home access at one's fingertips. The touchpad is easy for everyone in the family to use and is great for kids. A keyless home also means push-button locking from inside and outside, and eliminates the need for everyone in the home to carry a key.

The Powerbolt 1000 is easy to program. It has about 50 million security code combinations and can be programmed with four-to-eight digit security codes. A secondary security code that allows guests or service people temporary entry can easily be programmed.

The Kwikset Powerbolt 1000 sounds an alarm after three consecutive incorrect security code attempts, and has a low battery indicator light. The Kwikset Powerbolt 1000 electronic system retains security codes during power loss and AA battery replacement. The Kwikset Powerbolt® is available in a variety of fashionable finishes including Satin Nickel and Polished.

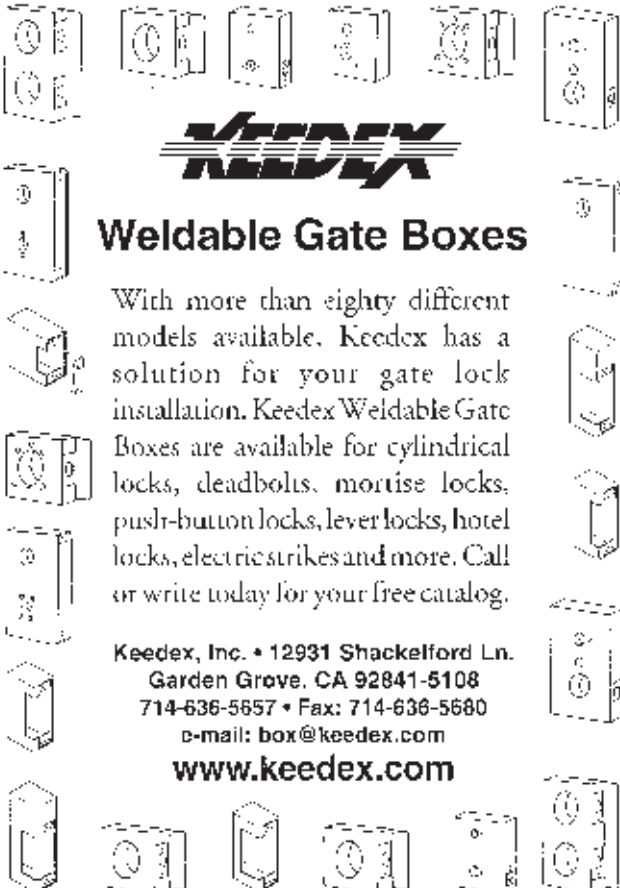




Weldable Gate Boxes

With more than eighty different models available, Keedex has a solution for your gate lock installation. Keedex Weldable Gate Boxes are available for cylindrical locks, deadbolts, mortise locks, push-button locks, lever locks, hotel locks, electric strikes and more. Call or write today for your free catalog.

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LA GARD LPAUDIT Offers Increased Control

LA GARD'S LPAUDIT entry device has upgraded lock software, which includes a controller code feature, the new eKEY™ and an outside battery compartment. The LPAUDIT can be used in conjunction with LA GARD's internal battery box or battery alarm box for use with the time delay feature or standard alarm features.

Designed after the LGAUDIT, the new LPAUDIT offers all the features of the LGAUDIT along with newly added features. The new LPAUDIT lock software offers an update to the original LGAUDIT software with the addition of the Controller Code, which enables the user to add, delete, enable, and disable the manager as well as retrieve the audit trail. The LPAUDIT allows up to nine users, time delay override, audit trail, silent signal alarm and our new eKEY™ with an improved design for ease of use.



NAPCO Structured Wiring System

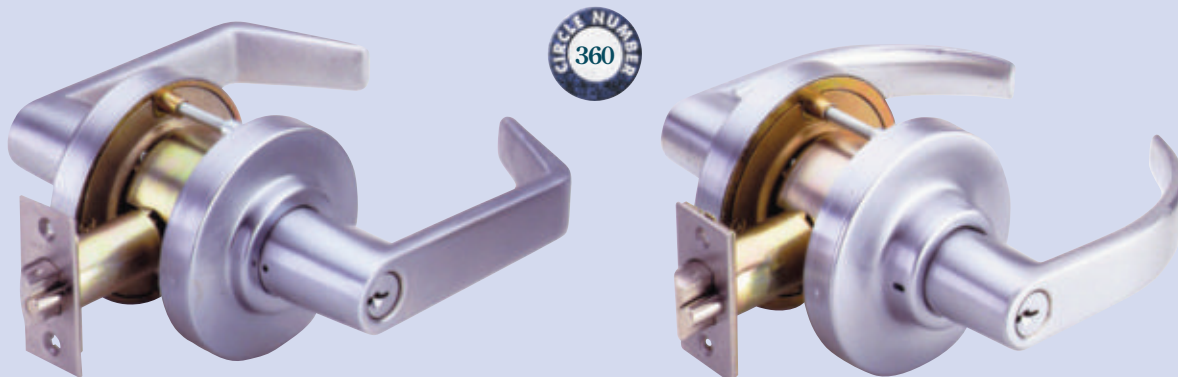
The Securi-Smart® Structured Wiring System from NAPCO Security Systems is the smart, money-saving system to incorporate security & structured wiring. It is the only wiring system on the market that provides for two telephone lines and a 10/100 Base Ethernet connection over a single CAT5e wire. Its unique technology adds built-in computer networking capability to the residential account at virtually no extra cost. A full line of additional Securi-Smart® modules necessary for efficiently linking voice, data and splitting and amplifying video, are also available. *See us at ISC East Booth 1916.*



Marks USA Adds Flexibility To Its "Survivor" Lever Locksets

Marks USA has enhanced the "Survivor" cylindrical locksets, enabling them to operate in a greater range of door conditions. Installation in older, poorly maintained doors or hollow metal doors with insufficient lock reinforcement can now be done without requiring sensitive adjustments. The lockset, which is self-adjusting within 1 5/8" to 1 7/8" door thickness, installs with just two #10 through bolts. Also available are models for doors up to 2 1/4" thickness, and spacer kits for doors of 1 3/8" thickness.

The "Survivor" series is available in both the "American" and the more rounded "Crescent" style levers. Both feature the "Clutch" mechanism in ANSI grades one and two, and are available with either conventional or IC core cylinders. These quality engineered locksets are manufactured in the USA.

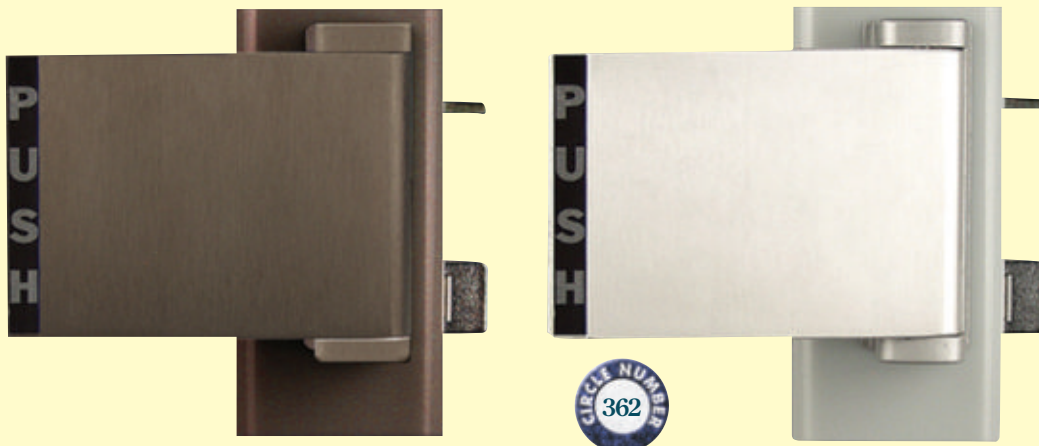


Securitron's Mortise Glass Lock With Paddle Handle

Designed for use on narrow stile metal or aluminum frame glass doors, Securitron's Mortise Glass Lock (MGL) is now available with the much-requested paddle handle in addition to the traditional handle. The paddle handle features continuous or intermittent duty, as with the traditional handle, but with the added features of architectural Clear Aluminum or Oil Rubbed Bronze finishes.

To compliment the MGL's exceptional electric locking for narrow stile aluminum frame glass doors and the ease of installation in an MS Deadbolt prep, both handle styles are now available in two popular backsets 1 1/8" and 3 1/32". These features are combined with a fail secure lock and decorative handle for free egress from the inside, but the lock also can be operated by an optional mortise key. (Not included)

In addition to being compatible with Securitron's full line of access control timers, the MGL works in conjunction with keypads, card readers or pushbuttons to satisfy all access control needs. **See us at ISC East Booth 1238.**



iAccess Remote Hosted Access Control System

Synergistics Inc. iAccess is an advanced, multi-featured remote hosted access control system. Residing at a Synergistics authorized Central Station, iAccess, via the Internet can control entry to facilities.

Through the use of one or more intelligent controllers installed at the facility, the Central Station can utilize iAccess to control up to 255 different access levels and entry points. iAccess is fully scalable to meet the needs of every facility and is designed with the flexibility to link multiple sites together under one access control system.



Videx Intelligent Electronic CyberLock®

Videx announces CyberLock®, an electronic lock cylinder designed to convert mechanical door lock hardware into a full-functioning access control system. CyberLock limits user access to specified locks at pre-determined days and times. A record of each opening and attempted opening is stored in both the lock and key, providing an audit trail that lets management know who, what, where, and when.

CyberLock cylinders cannot be picked and the keys cannot be duplicated. Battery power is stored in the key, allowing the cylinders to install simply without any wiring. CyberLock cylinders can be installed in padlocks, cabinets, containers, and interior and exterior doorways throughout entire complexes. **See us at ISC East Booth 2262.**



Door Motion Technologies

Making access easier for the aging

Betty had just come home from a hospital stay and was now using a walker and other physical therapy-related equipment to help her get around her home of nearly 40 years. Just one month prior, she was still a businesswoman running her own thriving travel brokerage. Most of her customers didn't realize she was 83.

Just inside the home, through a door in the garage, is the heart of Betty's travel business and her husband, Ray's, real estate operation. Because of Betty's new access needs, door operation needed to be addressed. Since the entry is two steps up from the garage floor, and since one needs to reach up and pull back in order to open the door, leverage and weakened arms become a problem.

The solution was to install Door Motion Technologies' DuraSwing MK-IV-R residential door operator and an HES electric strike, allowing for push-button opening and closing of the door from both the garage and the home office.

As more and more seniors find they need help entering their home, locksmiths can sell this simple job to many in their community. According to Door Motion, the average installation time is two hours, and our installation time was very close to that mark. The two hours of labor, trip charge and product markup make this job a very profitable one for an efficient installer.

David Carambula, president of Door Motion Technologies, indicated that a senior's home is not necessarily the first place a locksmith should start when selling a home access project. One way to prospect business would be for a locksmith to seek out locations with door openers which might be frequented by seniors. He said that many of Door Motion's industrial door operators have been installed in the public areas of senior complexes and other businesses. Families frequently ask facility managers if residential door operators are available. The answer is yes, and if the facility manager knows a locksmith who can do an installation, a referral could be forthcoming.

Units, such as those manufactured by Door Motion, are ideal for locksmith installation. All Door Motion residential units are plugged into a home outlet, rather than hard wired into the electrical system. Plug-and-go capability eliminates the need for a locksmith to have an electrical license or to share the job with an electrician. The only wiring necessary is to run a line from the operator to the electric strike, and a license is generally not needed for that run.

As always, the locksmith should do a site survey of the door before quoting the job. There may be additional opportunities to make money. Evaluate the condition of the hinges, jamb, doorframe, latch and water seal. All loose hinge screws should be tightened so the door does not bind due to non-plumb hanging or catching weather seals. If any repairs such as new hinges, weather stripping or even a lever or knob are needed, make the suggestion to the homeowner and earn yourself a little more both on product sale and installation time. In this particular job, the home-



1. The door from the garage to the home office previously had an industrial closer.



4. Strike plate taken off of door-jamb.

owner agreed to have ADA-compliant handrails installed next to the door.

Our assessment of this job indicated the DuraSwing MK IV-R was the best unit to meet the homeowner's needs. The operator has the ability to unlock, open, hold and return the door to the closed and locked condition under power, with no need for a hydraulic closer or spring to provide the closing part of the cycle. Door Motion staff was available throughout the installation for any technical assistance at their toll-free number.

The operator is being installed on the garage side of the door as the door swings out into the



2. Door Motion Technologies MK IV-R Beauty Shot with cover off to show motor.



5. New HES electric strike mounted with faceplate.

garage from the home office, (see *photograph 1.*) Most residential operators will be installed on the inside of the home, for example in the entry foyer, as the operator will be swinging the door into the home. The beauty of the DuraSwing MK IV-R is that it can be set to either push or pull a door open, (see *photograph 2.*)

The first step on this door was to remove the existing door closer, (see *photograph 3.*) The closer was a commercial unit, which had been installed some 30 years



3. Removing industrial closer.



6. Holding the motor up to the wall and marking drill points.

and several paint coats earlier, for a similar reason as its replacement - to make it easier for the family and business associates to have the door close behind them when entering or exiting the office from the garage.

After removing the heavy-duty closer, we removed the wood molding around the door. The plan was to run wires to the electric strike behind the molding. However, the space one might normally find between the doorframe and the adjacent stud was filled with plaster. Rather than chipping away the white stuff, we suggested running the wires along the molding and covering them with electric trim, which is available through most distributors or at hardware or home center stores.

Be gentle with the pry bar or screwdriver when removing the molding as old wood can splinter easily. We weren't so gentle and



7. Drilling pilot holes for mounting bolts.



8. Driving mounting bolts into wall stud using socket wrench and extension.



9. Driving bottom mounting bolts into wall stud using socket wrench and extension.



10. The motor is mounted.

found ourselves making a trip to the local hardware store to buy molding and a quart of close-matching paint.

Other door frame work included removing the old strike plate, and chiseling out an area for the HES electric strike, (see *photograph 4.*) The HES strike was installed the wires run, (see *photograph 5.*) Wires to the strike thread through this hole on their way back to the door operator.

Next was to determine positioning of the motor, (see *photograph 6.*) Door Motion Technologies provides a mounting template with the operator. Positioning will vary from installation to installation, so the locksmith should determine location of studs, proximity to door, etc. before putting the template in position. We determined that in order to meet studs and fasten the motor securely, the best position for this particular installation was above and to the left of the hinge side of the door. We positioned the unit so that the plug from the motor would reach a ceiling plug socket, thus eliminating the need to use an extension cord.



11. Positioning roller track and roller on the door.

Once the template was marked, pilot holes were drilled into the studs, (see *photograph 7*) the motor was placed in position, and anchor bolts were snugged down with a socket wrench and extension, (see *photograph 8.*) Once the top mounting holes were marked, drilled and secured, the bottom mounting holes followed, (see *photograph 9.*) At this point the motor control assembly was mounted and secured to the wall, (see *photograph 10.*)

After securing the motor, the roller track template was placed on the door and the travel of the actuator arm/roller was tested per instructions, (see *photograph 11*). Once it was determined the roller would stay within the limits of the track, the track was secured to the door and the Door Motion Technologies MK IV-R is installed, (see *photograph 12.*)

Door Motion suggests at this point to open the door slightly, plug the motor in and see if the door opens or closes under power. If the door closes, leads on the control panel are positioned correctly. If the door opens, the leads need to be reversed and the cam ring on the motor shaft needs to be adjusted. This is very simple to



12. With the track secured, the Door Motion Technologies MK IV-R is installed.

do, and is described in detail in the kit's instructions.

The operator can be activated by a remote push-button pad, hardwired push-button pad, push-button keypad or a handheld operator. Betty and Ray opted for the remote pushbutton inside the garage and hardwired pushbutton in the office. The remote pushbutton is activated much like a garage door operator. When the button is pushed, a radio signal is transmitted to the operator, which then opens the door. Dipswitches inside the remote and on the motor control panel need to be set the same way in order for the radio signal to work. The wire for the office button connects to the control panel and runs through a small hole, which was drilled, adjacent to the door.

The final adjustments to the door operator are the angle to which the door will open and the time the door will remain open, or hold time. The master force control potentiometer is factory set to produce enough push force to allow a 15-pound obstruction to cause the unit to stop and reverse when obstructed in the closing

Continued on page 22

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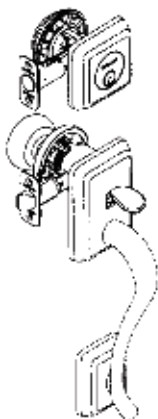
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half of the cycle. When opening, the door will stop and pause for 3.5 seconds, then try to resume. If the obstruction persists, the door will reverse, close and shut down. Force can be increased beyond this level, but sensors and guard rails will need to be added to comply with ANSI standards and related codes. Door Motion indicates that failure to do so will expose the pedestrian to potential hazard and the installer to potential subsequent legal action if someone is injured using the door.

The door angle control range is from about 60 to 110-degrees. This control is factory set to open the door to approximately 90-degrees. If adjustment is necessary, the control can be turned in small clockwise increments. The door operator should be restarted after each change until the door is at 90-degrees when holding open. The door hold open time is inactive in the standard program, but a chip can be added to automatically close the door after a set time. Door Motion can customize the control board with special chips made to suit individual requirements such as return force, hold open time extension, latching ramp-up and more.

With the aging of America, home installations of automatic door operators, such as the Door Motion MK IV-R, are bound to become more commonplace. Locksmiths can capitalize on this lucrative market by educating themselves about needs of seniors as well as products locksmiths can market to seniors.

For more information about the DuraSwing MK IV-R door operator or other related products, contact Door Motion Technologies Inc., Kalamazoo, MI (800) 291-1561, fax (616) 327-6158. Find them online at www.doormotion.com. Circle 365 on Rapid Reply. **TNL**

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1999 VOLVO S80

Ignition Removal and Disassembly



1. The ignition lock for this customer's 1999 Volvo S80 had broken and the car was towed to the shop. This car uses the external cut, 1V-5V high security Valeo code series, with four depths and four left and right track spaces. This code series has been in use since 1988 and the ignition locks are similar for many models. This 1999 Volvo S80 was the first year the car came equipped with a transponder. Although in most cases when you order an ignition lock by V.I.N. it will come coded to match customers existing key, we will cover disassembly and re-keying of this high-security lock.



by
Michael Hyde

Ignition Lock Removal



2. Here we see a picture of the ignition in the steering column.



3. Begin by removing the three Torx 25 screws that hold the bottom shroud to the steering column.



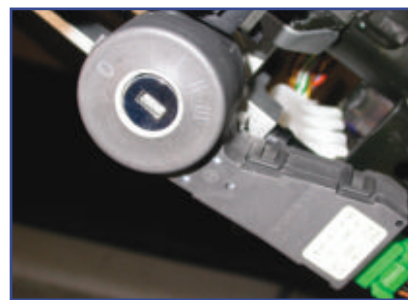
4. You can now separate the bottom shroud from the top.



5. Next, remove the upper shroud.



6. Be careful not to break the plastic tabs that secure the rubber trim piece to the top shroud.



7. You now have access to the transponder antenna ring.



8. Use a small poker to release the plastic tabs on the transponder antenna ring that secure it to the ignition lock.



9. You can now let the transponder antenna ring hang out of the way.



10. There are two shear-head bolts that secure the ignition to the column.



11. The manufacturer uses a large amount of Threadlok on these bolts so they can be tough to remove.



12. I have found the best tool to use is a Rotabroach sheet metal cutter and a right-angle drill. Using the Rotabroach cutters, cut the heads off both shear-head bolts.



13. Here are the two holes in the column that are used by the shear-head bolts.

Continued on page 28

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Ignition Disassembly



14. Next, release the shift cable from the ignition lock.



15. Finally, remove the two Torx 25 screws that hold the electrical switch to the ignition lock.



16. You can now let the electrical switch hang out of the way.



17. You can now remove the lock.



18. Note what is left of the shear-head bolts.



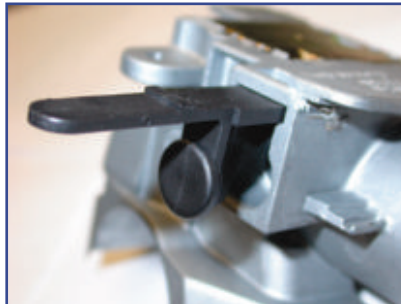
19. The customer's key. Volvo part number for the ignition lock is 826375 and list price is about \$115. Unfortunately the tumblers are not available anywhere, so you will probably end up shuffling them around to match the customers key.

Disassembly of this ignition is not difficult, but it is made easier with the help of two others. You do need to have a working key to disassemble this ignition. Also, it helps to understand how the wafers are positioned in the lock relative to the key, and you will need to disregard the "L" and "R" letters stamped on each tumbler. This is also a "clutching" type cylinder that will turn but not engage the rear gear if the wrong key is forcefully turned in the lock.

The cuts for this key are:
Left Track-3 2 3 1
Right Track-2 1 4 1
This corresponds to code 3V6179.
The tumblers found in the lock are:
3L 2L 2R 1R 3L 4L 1R 1R
So we must ignore the "L" and "R" stamping on the tumblers.

The left track cuts are:
3L 2R 3L 1R

The right track cuts are:
2L 1R 4L 1R



20. Begin by removing the plastic shift-cable plug.



21. Next you will have to remove the spring relocker. Use an automatic center punch on one side of the relocker plug.



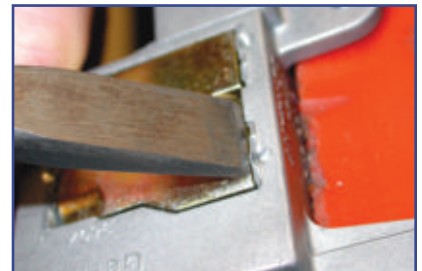
22. The plug will pivot and you can remove it with a pair of long nose pliers.



23. Now remove the spring and relocker.



24. Next you will have to release the pressure on the large gold cover plate on the bottom of the lock.



25. Securing the lock in a vise, use a chisel or punch to push back the metal that has been peened over to hold this cover in place.

Continued on page 30

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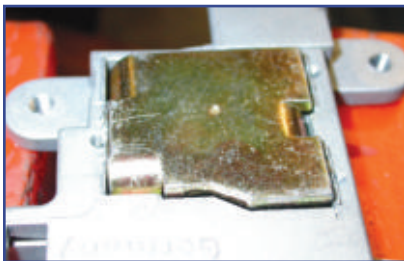


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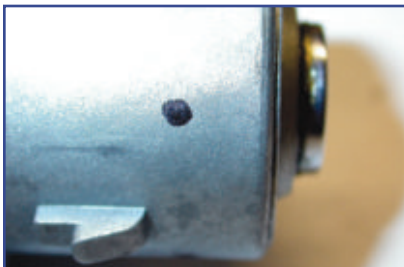
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26. The cover will pop upwards and float freely when you have pushed back enough of the material securing it.



27. Do not remove the cover completely or you will break the internal rod, you just need to have it float freely!



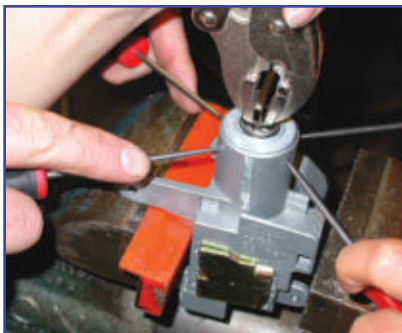
28. You will need to drill four holes about 9/32" back from the face of the lock. The holes should be lined up with the four corners of the keyway.



29. Drill only enough to go through the housing.



30. You should be able to see the retaining spring through the hole.



31. Now you will need to secure the lock vertically in a vise and you will need to have the key in the "RUN" position. One person will need to pull steadily upward on the key with a pair of Vise-Grips, while two others depress the retaining spring with pokers.



32. The cylinder will move upward slightly.



33. Now remove the four pokers and the cylinder will come out.



34. The cylinder, spring, rod and plate removed.



35. To disassemble the cylinder begin by removing the "C" clip on the rear of the lock.



36. The rear spacer will now come out.



37. There is another internal spring that needs to be released.



38. The plug will now come out the rear of the cylinder.



39. The plug, cylinder, tumblers and all parts. Notice the two rollers and the spring assembly that allow for the "clutching" action of the lock if forcefully turned with the wrong key.

Continued on page 32



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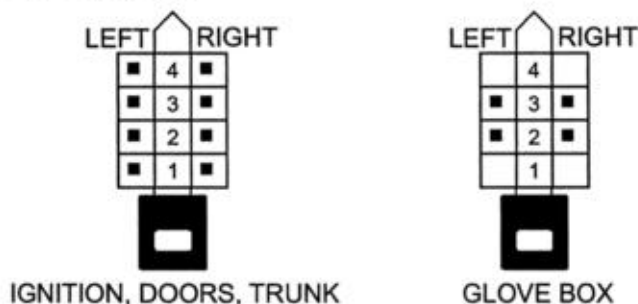
MAKING FIRST KEY: continued...**4**

CODE SERIES: 1V0001 - 5V12295 - High Security

1993-1998 MODELS—4-TRACK KEYWAY

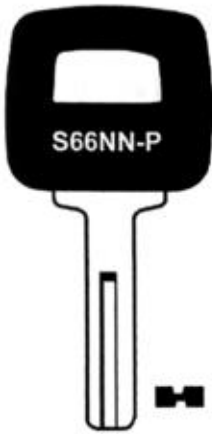
NOTE: Must have a high security key machine! Use Space & Depth Keys. The Space & Depth Guide Keys for this model are different than the set used for 1988-1992 models.

Method Remove door cylinder and disassemble. The tumblers have a number stamped on them. Make a key to the door cylinder and it will all the other locks. There are Four Depths. **Do not follow the 'L' & 'R' stamped on the tumblers.** The positions of the tumblers in comparison to left and right are staggered on the key. Earlier Volvo 4-Track keys are not like that, but are evenly spaced.



Do not follow the "L" & "R" stamped on the tumblers. It will only confuse you. The only you need off of the tumbler is the Depth.

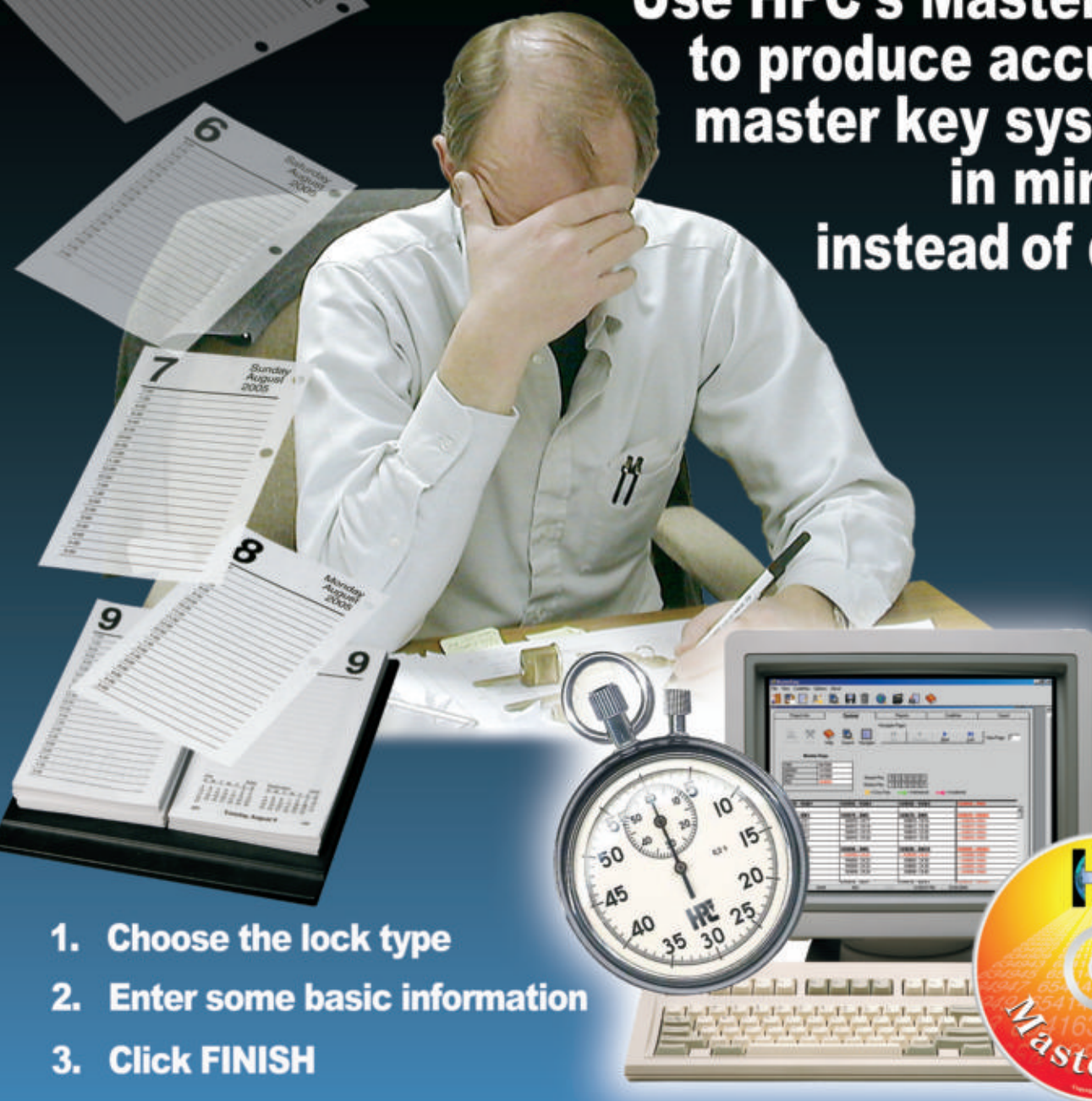
SPACE AND DEPTHS: continued...

D HIGH SECURITY CODE SERIES: 1V/2V/3V/4V/5V 001-12295 MOST 1993 & UP MODELS / LOCKS MADE BY YMOS					DEPTHS 1 = .289 2 = .264 3 = .238 4 = .213	
Bow: SPACING Tip				Cut to Cut: .173		
.773	.599	.426	.252			
1	2	3	4			
.693	.520	.346	.173			
Key Blanks:		ILCO: S66NN-P		SILCA: NE66P		
Reed Codes:				HPC 1200 CM		
Curtis Clipper:		Cam:	Carriage:	ITL MFG:		
Pak-A-Punch:				M.A.C.S.: 3		
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An Aluminum Stile Door **In a Box!** *Part 1*



by
Jake Jakubowski

Yep! You read that right. An aluminum stile door in a box, and the frame too!

Well, actually, the frame is not in the same box, but you get the idea.

This new product from New World Aluminum (Distributed by: Keystone Door and Lock, in Schuylkyl Haven, PA. Phone: 570-385-9600) is something that the serious door tech needs to be aware of. And, the locksmith or door tech that come across the occasional narrow stile door replacement needs to keep in mind that with the advent of this product, aluminum stile door replacement has never been easier, faster or more professional outside of the aluminum storefront industry!

Strong statement you say?

Well, you could be right but I think this door is just what I said it is. And, I'll make an even stronger statement. This door is a ready-made profit center for the technician who has, in the past, shied away from total replacement of narrow stile doors!

What else would you call a product that you can carry on your truck, put together on location, install immediately and easily double your costs and collect a nice installation charge on, as well? Personally, I'd call it a bandwagon. And I'd call it a bandwagon that I'd want - actually, I did - get on!

Take a look at the door in *photograph 1*, and tell me if you would think that door came out of a box and was assembled on site?

Of course you wouldn't, but the guys at Keystone Door felt the New World Aluminum door would be perfect for office partitions they were installing at a business in their service area.

This particular installation included the door, the frame, the hinges (Yes, this door has butt hinges), the pull handle and the crash bar.

The light (glass) does not come with the door, but the installer can choose to use either glass, a solid, opaque polymeric panel, or mar-resistant Lexan®.

Regardless of the light used, this door makes a clean, neat, and easily installed package that's sure to please you and your most demanding customer.

Check out the door assembly, the frame assembly and the installation procedures following.

Continued on page 36



Photograph 1.

ACCESS CONTROL MADE ACCESSIBLE.



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The Door

The door really does come in a box (*photograph 2*), and as you will see as we go along, the “package” contains everything needed to assemble the door except the glass and the tools to do the job!

The door is handed and is not field reversible. That means each door has to be ordered specifically for the hand of a given opening. Or, a technician needs to keep one of each in stock.

The door weighs 34.2 lbs., without the glass and is a 3'0" x 7'0" (36" x 84") door. The package contains the stiles, rails, shear blocks, locks, pulls, crash bars, glass stops, pivots and all of the mounting hardware needed to assemble the door from kit, to complete. Note: The door can be ordered in a 42" wide version, which is a width often found in older, center-hung single leaf doors.

Photograph 3, shows the box being opened by Randy Blakenhorn of Keystone Door



Photograph 2.

and Locksmithing. Note how securely everything is packaged. There's little, or no, chance of the finish being marred or damaged during shipping with the amount of packing materials used.

Time-wise, from this point to a completely assembled door, will vary from job-to-job and installer-to-installer. However, I would think that on most jobs, it would not take more than thirty minutes to assemble the door and have it ready to place in the frame.

Once the door is out of the box (*photograph 4*), the shear blocks have to be placed on the top and bottom of the stiles and the assembly is ready to begin. Note that the pivots (top and bottom) are already appropriately placed on the proper stile.

The kit contains everything that is needed (except the manpower) to put the door together. *Photograph 4*, will allow you a quick familiarization with the components contained in the box.

In the photograph you can see the stiles (with the shear blocks in place), rails, pull, crash bar are shown. In the upper right hand



Photograph 3.

corner of the photograph, Dave Fitting is shown installing the final shear block. From lower left to upper right the parts are as follows! “U” Shaped Pull; Crash Bar; Header Rail; Stile; Bottom Rail; Stile.

The white box sitting at the end of the bottom rail is the box that contains the screws and hardware needed to assemble the components.

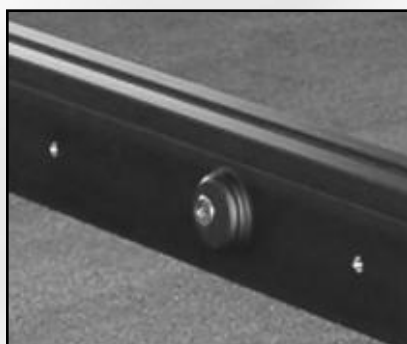
As can be seen in the *photograph 5*, even the lock and cylinder (with two keys, not shown) are included in the package.

The holes above and below the cylinder (SC1) are predrilled for the “U” shaped pull. As most of you are well aware, the ADA (American's With Disabilities Act) mandates this type pull on these doors to eliminate the necessity for tight “grasping, pulling, twisting”, etc.

Photograph 6, shows the “face” of the lock. It's an imported version of an MS 1850 by Adams Rite. The disassembly is the same and the servicing, when needed, will follow normal service procedures.



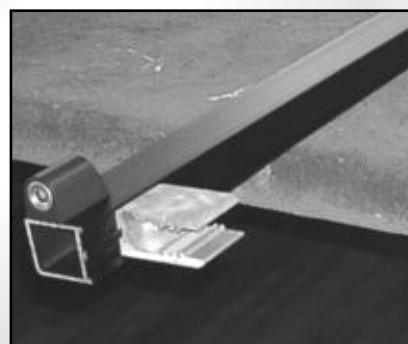
Photograph 4.



Photograph 5.



Photograph 6.



Photograph 7.

This lock comes with two keyed cylinders. If you install one of these doors, most likely you will have to remove one of the cylinders and replace it with a thumb turn in order to bring the door into compliance with ADA and Life Safety Codes for your jurisdiction. As always, if you are in doubt, make the necessary changes.

Photograph 7, shows stiles, the shear blocks and the bottom pivot. This photograph shows the detail of the shear block mounting on the stiles of this door. This is a really heavy-duty mounting.

The pivot that you see over the shear block mounting is the top pivot. The four holes to the left of the photograph are the pre-drilled holes for the screws that attach the top rail to the shear block.

Photograph 8, shows the detail and the heft to the shear block. Note how it mortises into the

inside of the stile. The ridge running down the center of the stile helps stabilize the shear block; and the heavy-duty Allen head cap screw and the large washer, along with the star washer, ensures the rigidity and integrity of the door. The view in the *photograph 8* is of the bottom, pivot-side, stile. The shear block may appear to be a little "high" on the stile until you realize that this is the bottom of the door and the bottom rail is wider than the top rail.

In *photograph 9*, Randy is ready to attach the top rail to the stiles. The arrow points to the shear block on the stile at the top of the door, and Randy is pointing to the Glass Jack which is always on the top, latch side of the door.

In *photograph 10*, Randy is sliding the components together, prior to securing them with the screws provided in the kit. *Photograph 11*, shows the detail


of the shear block attached to the stile and the alignment of the pre-countersunk holes for mounting the top rail to the stile.

In *Photograph 12*, Randy is securing the top rail to the shear block on the latch side of the door.



Photograph 8.

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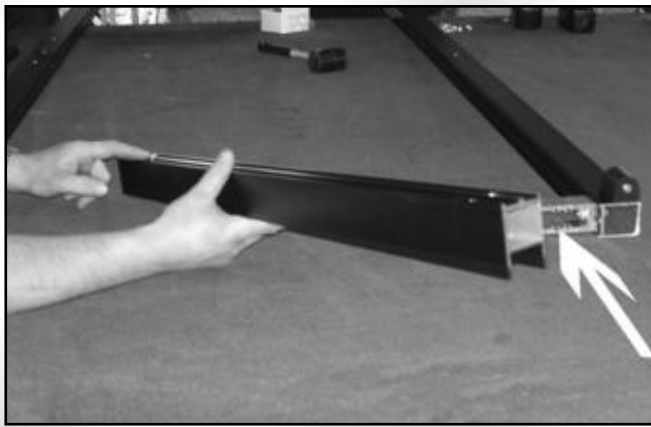


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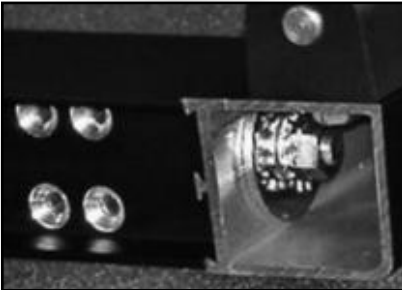
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Photograph 9.



Photograph 10.



Photograph 11.



Photograph 12.



Photograph 13.

Photograph 14.



Photograph 15.

Each side of a rail has four screws that are driven into the shear block. Directly in line, under Randy's thumbnail, is the Glass Jack, screw (see arrow in photograph 12).

I stress the location of this screw mainly because you will find that you can often stop a door from dragging by tightening this screw. Frequently, you will see a narrow stile door that is sagging to the latch side of the door and a simple twist or two on the Glass Stop screw is all that it takes to correct the problem. And, depending on your market

area and the prices you charge, that simple adjustment can often put a hundred-dollar bill (or more in your pocket)!

In photograph 13, the bottom rail is being slid down over the shear block on the bottom of the stile. Note the bottom pivot. When the stiles and rails are assembled and the screws are all properly secured; the edges of the stiles and rails should all be tightly drawn to each other without any gaps, or spaces.

If there are any spaces between the meeting edges of the rails and stiles then some-

thing is out of adjustment and must be fixed before the assembly continues. Otherwise the door will begin to exhibit problems and signs of wear almost immediately.

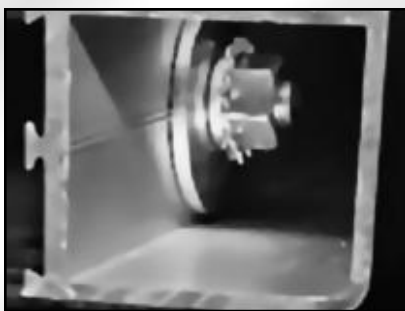
Photograph 14, shows the assembled frame of the door. In this photograph you are looking at the door from the top.

The next step is attaching the pull handle to the latch side of the stile, (photograph 15). After which the crash bar is attached to the inside of the door.

Quickly recapping the assembly
Continued on page 40

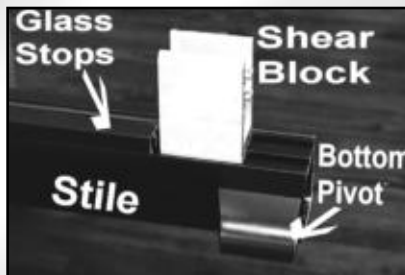


Photograph 16.



Photograph 17.

bly of this door, *photograph 16*, is the shear block being attached to the stile. *Photograph 17*, shows the detail of the attachment of the shear block on the inside of the stile. *Photograph 18*, lists the



Photograph 18.



Photograph 19.

various components of the assembled pieces and *photograph 19*, details the rail being attached to the stile.

With all the components in place, the door is assembled and ready to accept the glass or the Lexan light. With the glass, or other material in the door the door is ready to be hung. In the next section of this article, I'll not only show you the assembly of the frame but the installation of the door as well.

Next time you'll see how this door, and frame in a box comes together and makes a really great looking serviceable door; that is easy to assemble, easy to install and easy to make money with.

For more information on these New World Aluminum Doors contact Keystone Door and Locksmith. Phone: 570-385-9600. Plus see Jake's Aluminum Stile Door manual on page 93 of this issue. Circle 366 on Rapid Reply. TNL

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about all those excuses to your customer regarding the three holes that you have to drill in his door (*oh, no... please don't let this be another leased property or another \$600 oak door*)...



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Squire Locks

Henry Squire & Sons Limited founded in 1780.



by
Sal Dulcamaro,
CML

Over the many years I've been writing, I've had the opportunity to write about some very new brands of locks and some very old brands of locks. Some companies have been barely "out of the box" when I've written about their products, while others have been well over 100 years old, and some companies have been a lot older than 100 years. With Henry Squire & Sons Limited of Great Britain, a company across the pond (Atlantic Ocean), I've come across one of the more "established" lock companies to date. Their web site refers to an independent family business spanning eight generations and a founding year of 1780. I don't think you could argue that they have any resemblance to a "fly by

night" organization. When you look at their product line, though, there doesn't seem to be anything old fashioned about it. An Old World company, Squire seems to be primarily a manufacturer of padlocks. Their web site also shows some bicycle and other two-wheel vehicle locks, but my emphasis and focus in this article will be on the Squire resettable combination locks.

Actually, their product literature refers to these locks as "recodable" combination locks, **(photograph 1)**. These locks have a sharp modern look to them. They have a die cast lock body that is zinc plated then coated with a black protective coating to provide a high level of corrosion resistance. They are designed for outdoor use. The CP1 line of padlocks comes in four versions all in the same body width and thickness. Outside the United States, you

mostly find metric measurement used and this applies also to British companies. The padlock body is listed as 48.2 millimeters wide, which comes to roughly 1 3/4" in width. They all have an 8 mm diameter hardened steel shackle, but then vary slightly by shackle configuration.

The padlocks from this line that I looked at were all black, but all four versions are also available in a variety of colors. Mechanically, they should be the same as the four individual versions I describe here, only with a colored stripe around the bottom and top of the padlock body.

The base model CP1 padlock has a vertical shackle clearance of 26 mm, which is the rough equivalent of a one-inch clearance, **(photograph 2)**. With an overall padlock height that is nearly the same, the model CP1CS has a closed shackle or "shrouded" shackle, **(photograph 3)**. The "CS"



1 Squire recodable combination locks.



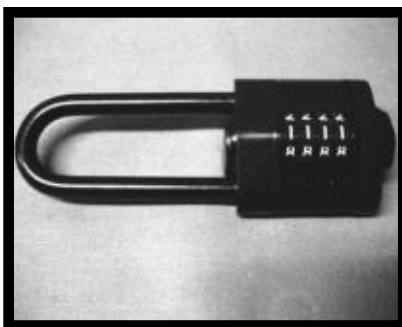
2 The base model CP1 padlock.



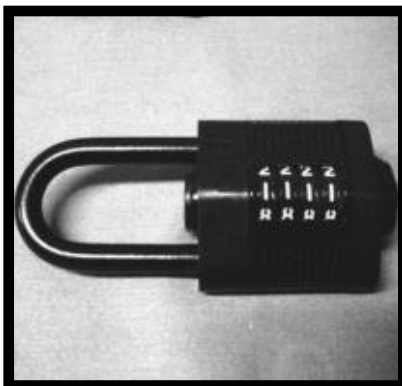
3 CP1CS has a closed shackle or shrouded shackle.

in the model number stands for "closed shackle". The purpose of a closed shackle is to obstruct access to the shackle by bolt cutters or other cutting devices. Although the overall padlock length is nearly the same as the CP1, the body configuration of the CP1CS gives it a net vertical shackle clearance of 22.5 mm. That is just a fraction smaller than the clearance of the CP1.

There are two sizes of extended length shackle padlocks in this line. The model CP1 1.5 has a vertical shackle clearance of 40 mm., (**photograph 4**). That converts to approximately 1.5 inches. The padlock model number apparently identifies the vertical clearance as an inch measurement. The model CP1 2.5 does the same thing, (**photograph 5**). Its 65.5 mm vertical shackle clearance translates to roughly 2.5 inches.



4 The model CP1 1.5.



5 The model CP1 2.5.

Resetting/Recoding the Combination

While all four versions of the CP1 padlock line have some physical variation in their appearance (and application), they all open the same way and the procedure for combination changing is essentially the same. This distinction should also apply to versions of this lock that come in different colors.

While there is a general resemblance to other resettable combination padlocks already available in the U.S. lock market, there are some distinctive variations. Each of the four resettable combination wheels are numbered from 1 to 8. There are some existing brands that have a 10 increment range (0 to 9) where with a base 10 setup, you determine how many possible combinations by taking the number of wheels and putting

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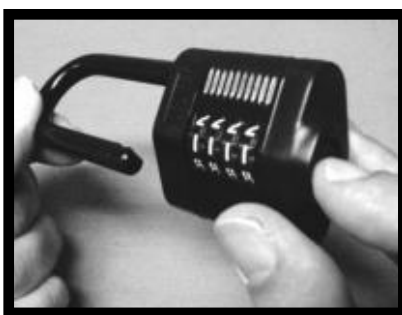
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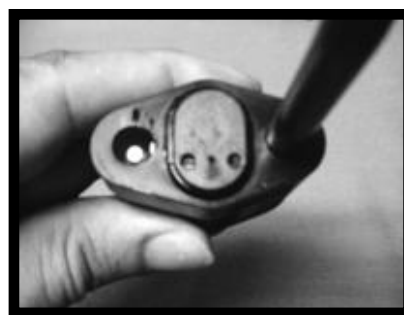
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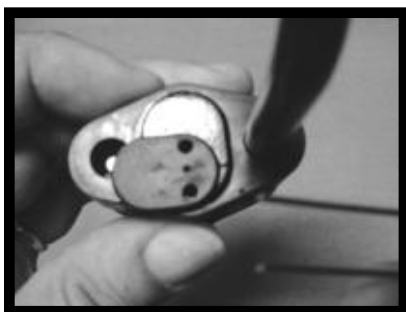
6 On the bottom of the padlock body is a round button.



7 The factory default code is 1-1-1-1.



8 An oval shaped disc or button.



9 Rotate the button 90-degrees.



10 Insert the code key through the two small holes.



11 Push down firmly on the tool and hold it against the spring resistance.

that many zeroes after the digit "1". A 3-wheel lock would have 1,000 possible different combinations and a 4-wheel lock would have 10,000 possible combinations. In reality you are just multiplying 10 for each wheel on the lock.

It is less simple for anything other than base 10. With an 8-increment range per wheel, these 4-wheel locks have 4,096 possible unique combinations. It seems amazing that losing 2 of 10 increments leaves less than half the number of unique combinations, when comparing four 10-increment wheels to the same number of 8 increment wheels. Just do the math to check the numbers. $8 \times 8 \times 8 \times 8 = 4096$; and $10 \times 10 \times 10 \times 10 = 10,000$. If you were to go from 10 to 11 increments for each of four wheels, you would compute it as follows: $11 \times 11 \times 11 \times 11 = 14,641$. In that case, increasing the number of increments per wheel by 10 percent increases the total number of usable combinations by nearly 50 percent.

Before we deal with combination changing, let's quickly review how you unlock the CP1 series padlock.



12 The Squire Stronghold padlocks.

If you look at the bottom of the padlock body you will see a round button nearly in the center of the bottom surface, (*photograph 6*). After you enter the current padlock combination, the factory default code is 1-1-1-1, press the release the button and the shackle will pop open, (*photograph 7*). If the combination had been previously changed, you will enter that code instead.

The lock must be in the open position in order to change the combination. If you look on top with the shackle open, you will see a nearly oval shaped disc or button, (*photograph 8*). Rotate the button 90-degrees so that the two

holes in the button line up with two access holes in the top of the padlock, (*photograph 9*). Part of the oval shaped button now obscures part of the shackle hole. In my right hand I'm holding the code key. The code key is a deep "U" shaped tool for resetting the lock combination. Insert the code key through the two small holes in the button and push down as far as it will go, (*photograph 10*). When you push inward, you will feel spring resistance. Push down firmly on the tool and hold it against the spring resistance while you rotate the wheels to your chosen new combination, (*photograph 11*). When you back off the tool and release the pressure, your combination will be set.

Squire Stronghold Hi-Security Combination Locks

Squire also makes some very heavy-duty combination padlocks designed for use outdoors. The Squire Stronghold padlocks come in two different sizes, (*photograph 12*). The larger one of



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13 The model SHCB75 is a 5 wheel resettable lock.

the two, model SHCB75, is a 5 wheel resettable lock with a shackle diameter of 12.7 mm., **(photograph 13)**. Each wheel is numbered 0 to 9 with ten increments per wheel. This lock has 100,000 possible unique combinations. The smaller version, model SHCB65, is a 4 wheel resettable lock with a shackle diameter of 11 mm., **(photograph 14)**. Each wheel on this lock also is numbered 0 to 9. With ten increments per wheel, this lock has 10,000 possible unique combinations. Both sizes of locks come set at the factory with a combination of all zeroes. A notched indicator at the bottom of the lock indicates where to line up the digits of the combination.

Except for the sizes and number of wheels, both locks operate identically. I will demonstrate the operation and combination changing procedure on the smaller of the two locks, **(photograph 15)**. First, to open the lock, you must dial the operating combination. The factory default code is 0-0-0-0. There is a pull knob directly in line with the wheels of the combination.



14 The SHCB65 is a 4 wheel resettable lock.

Pull outward on the knob (away from the lock body) against spring pressure. When you pull far enough the shackle will release, **(photograph 16)**.



16 Pull and the shackle will release.

Like the CP1 series combination locks, these must also be unlocked first before the combination can be changed. Once the lock is unlocked, look to the far right side on the bottom of the lock, **(photograph 17)**. There is a very small slotted screw that must be backed off four turns to the left (counter-clockwise). Once that small screw is backed out enough, the pull knob can be pulled out even further than normal, **(photograph 18)**. Pull on the knob and turn it a quarter turn counter-



15 Operation and combination changing procedure on the smaller.

clockwise. The pull knob will now stay extended while you reset the wheels to a new combination, **(photograph 19)**. Once you have the combination you want, turn the knob back into position and it will click into place holding your newly set combination, **(photograph 20)**. Tighten the small slotted screw back into the lock body and you are done.

The Squire Combi Bolt

Besides the various resettable combination padlocks, Squire also makes two styles of resettable combination slide bolt. They are essentially the same design, but one of the two called the Combi 2 is die cast with a black powder coat finish, **(photograph 21)**. The other one called the Combi 1 (not shown) is solid brass with a rustproof finish. Both of the slide bolts have four resettable wheels with 10,000 possible different combinations.

The Combi Bolt locks work much like the padlocks. Rotate the coding wheels to the opening combination (the factory default code is 0-0-0-0) and then slide the



17 Once the lock is unlocked, look to the far right side on the bottom of the lock.



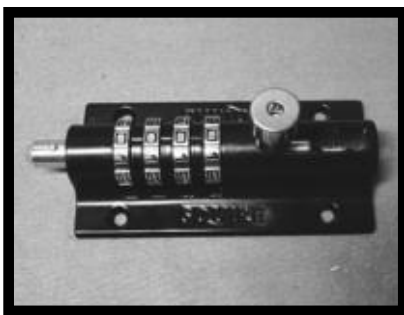
18 There is a very small slotted screw that must be backed off four.



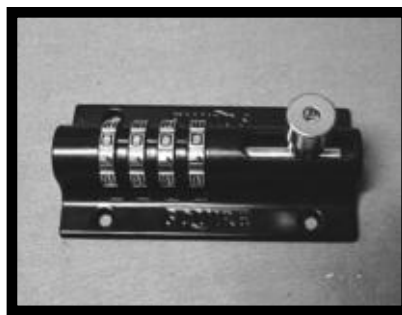
19 The pull knob will stay extended while you reset the wheels.



20 Turn the knob back into position and it will click into place.



21 The Combi 2 is die cast with a black powder coat finish.



22 The factory default code is 0-0-0-0.

bolt open, (*photograph 22*). One interesting thing about the Combi Bolt is that it can be locked with the slide bolt extended or retracted. If you lock the bolt open/retracted, you can keep someone from playing with or locking a door or other point of entry. Only by having knowledge of the correct combination can someone extend or retract the bolt.

Final Thoughts

There are some important things to remember about resetting combinations that I didn't mention

earlier in the article. Regardless of the type of keyless lock, it is always a smart idea to write down the chosen new combination before actually setting it. It is not that unusual for someone to disturb your concentration while in the process of setting a new combination. It is very easy to forget that unwritten new code that is temporarily stored in your brain. Depending on the combination lock you are resetting, having to find that forgotten code can be anywhere from a minor annoyance to a major headache. Save yourself the trouble of dealing

with that problem after the fact, by thinking ahead and writing down the chosen new code in advance.

Overall, I was impressed by the Squire locks, especially the larger heavy-duty padlocks. Don't lose the code on that 5 wheel lock. You don't want to have to try 100,000 codes to open it. While Squire is a British lock maker, it is represented in the U.S. market by Squire USA.

You can contact to them at:
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Job Sharing Tools



by Joan Yarrington



I'm sure many of you have noticed that, like other specialized tools of a particular trade, locksmith tools can be somewhat costly. It seems that if we see a tool in a locksmith catalog, we often find ourselves mumbling, "Gee, I can buy that \$15.00 pair of tweezers at Walgreen's for \$5.00. Why not save the \$10.00?" One reason for this could be that we're just a tad lazy. The other reason might be that this is an honest-to-goodness, genuine locksmith tool that we can only buy at one place—our locksmith distributor.

On the other hand, there are, both from my own experience and from a number of years of reading the Technitips column in

this magazine, a number of tools we use regularly in locksmithing that were made expressly for specialized locksmith tasks, which can also be used for other jobs. I'm going to share with you just some of these tools that cross-over from time to time.

The first tool has to be the Air Wedge™. There are variations of this tool put out by several companies and each one is called something a tad different, but it is still a similar tool. I happen to use the HPC Air Wedge™, (photograph 1).

The Air Wedge™ is designed to insert between the door and frame of a car to create a gap wide enough to insert a long-reach tool into the passenger compartment to reach a lock rocker or unlock button. Or you can reach an inside door handle to unlock the car with no damage to the paint job. Well, there are a couple of other uses for the trusty Air Wedge™.

Inflated Air Wedge under door to hold in place for drilling



2. Joan's Air Wedge™ holding the door open.

The first would be to place the wedge between the door and jamb when you come across a knoblock that just won't pick, or your customer leads you into the garage because "That lock will be easier for you to unlock." From the garage door opening, you can actually see the latch and notice that if you can spread the door away from the jamb $\frac{1}{4}$ of an inch, the door will be open. The Air Wedge has the extraordinary ability to apply up to 450 pounds of spreading pressure and the soft material will not do the damage a crowbar will.

A second alternative use for this product is when I'm doing a fresh install of a lock. When I drill the cross-bore, I like to be



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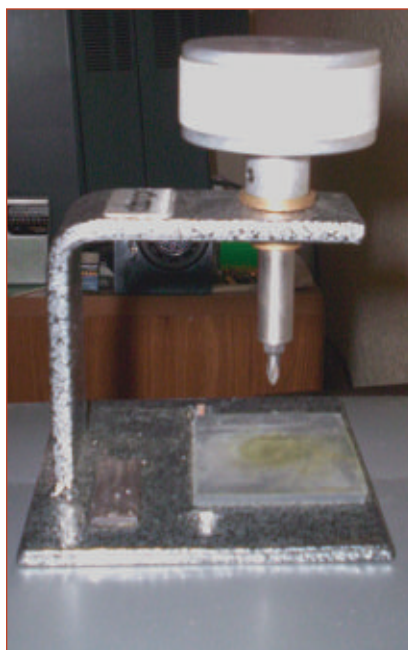
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able to occasionally look at the other side of the door to watch for my pilot bit coming out the other side. For this, I prefer to have the door partially open, but that makes it difficult to hold the door in place while drilling. Enter the Air Wedge™.

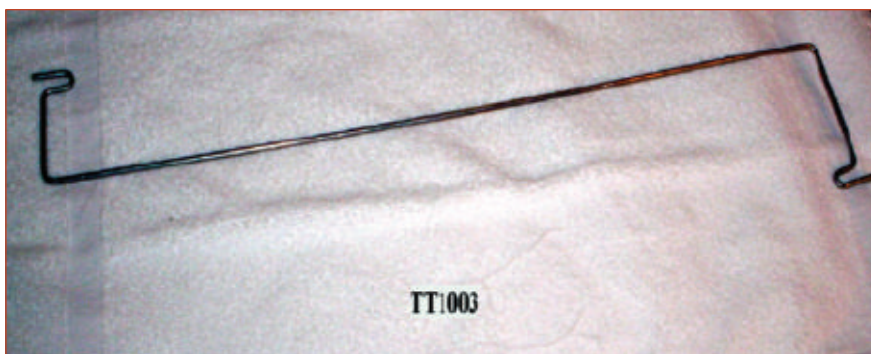
Simply open the door, place the Air Wedge beneath the door and pump it up. The Air Wedge™ will hold the door steady while you drill, (*photograph 2*).

Another tool that is designed for a specific use is the Spin-Out tool by Keedex, (*photograph 3*). This tool is designed to easily remove very tightly held screws holding the cam of mortise cylinders in place. Whether a previous locksmith used Loctite or merely wanted to show off their strength and tighten the screws down as tightly as they could, your job of removing these screws can become somewhat difficult.

The Spin-Out makes removing these stubborn screws child's play. There is a tray to place the cylinder on and the large round



3. Spin-Out tool by Keedex.



4. The Z-Tool by Slide Lock Tool Co.

handle gives plenty of leverage. While one may think they don't really need this tool, (as I did at one point), trust me, it can ease stress. The old #1 Phillips head screwdriver just doesn't cut it sometimes.

Another use for the Spin-Out is another screwdriver job. Yes, it is still used as a screwdriver, but in a different way. The Spin-Out comes with several different sizes of points. There have been a number of times when I have come across an Adams Rite face plate which hasn't been removed in years and the screws seem to be glued in. It makes it difficult to remove the screws. I put a larger #2 driver point into my Spin-Out screwdriver, remove the driver from its stand and use it instead of my regular screwdriver. The large handle on the Spin-Out offers extra leverage, making the job much easier. And if I have to tap it with a hammer to help loosen the screw, it's a larger surface to aim for.

The same thing holds for a "glued in" setscrew. Just use the small slotted tip that comes with the Spin-Out and kiss your worries goodbye.

The final specialized tools with multiple uses are car opening tools. One tool in particular which is known by many names is the Z-Tool by Slide Lock Tool Co. Other companies refer to it as a TT1003, CO72, A001 and other

names. By whatever name the manufacturer wishes to call it, it is basically the same tool with perhaps some very minor differences. Basically it is a rod with two ends bent at right angles; one short end, one a little longer and both ends have a hook on them, (*photograph 4*).

To use this specific tool, wedge open a gap between the glass and the weather-stripping first. Place the tool inside the gap and lower it until you hit the interior lock linkage rod. Once on the lock linkage, twist the tool to bind the rod and either move the rod forward or backward to unlock the car. The linkage rod is usually horizontal in the door, although this tool can also be used to lift vertical linkage rods.



5. Insert the "L" tool and place it against the exit device.



6. Pull towards you to release the exit device.

Locksmiths, as highly evolved problem solvers, have come up with some other uses for this tool. The two ways that leap to mind involve using the combination of both an Air Wedge™ and the “L” shaped tool.

Let’s say you are faced with an Adams Rite lock and for the life of you can’t get it to pick, but you do see the customer has a thumb turn on the inside of the door. Use your trusty Air Wedge™ to open a gap between the jamb and the door, or between the doors in a double-door situation. Slip the “L” shaped tool inside and use the hooked end to manipulate the thumb turn. I realize there is a tool on the market for just this purpose, which would probably be easier to use, but if you’re short on your tool budget the “L” tool works.

Now, let’s say you come to a door that you again can’t pick and see a push bar, push paddle or similar exit device on the inside of the door. Again, open a gap between the jamb and door or between the doors in a double-door situation with the Air Wedge™, insert the “L” tool and place it against the exit device and pull the paddle, *(photograph 5)*. With the tool in place, simply pull towards you

to release the exit device, *(photograph 6)*.

These are just a few of the ways I have found to use some tools for purposes other than what they were originally intended for. The next time you’re on a job and something pops up where you don’t think you have a tool to take care of it, look in your tool box or car opening set and see if you don’t have something there that can

take care of the problem. I’ll bet with a little imagination and ingenuity you will find that you just might. It may take some bending or twisting or contorting of a tool, but somewhere in your pile of “stuff”, you have something that will help get you out of a pinch. If you want to get a tool specially made for the task later, go for it, but in the meantime save that extra trip and time. **TL**

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C BEGINNER'S CORNER

The Basics of Rekeying, Part 2



by
Ken Holmlund

Last month I wrote about the tools you will need to rekey most brands of locks. This month I would like to cover the specifics of rekeying the most common brands of locks in my area. I will concentrate on Grade 2 locks since they are the more common in most non-commercial applications.

Rekeying Weiser

The Weiser A500 and A530 are one of the most common household locks in my area, (*photograph 1*). The A500 is the familiar push and turn the inner knob to lock. The A530 uses the small button in the middle of the inner knob to lock. Either style is totally unlocked when the key is turned from the outside and you have to unlock them from the inside before egress can be achieved.

As often as not, I am called to open the lock before keying it so it is important to know that the lock can only be picked to the right or in a clockwise direction, (*photograph 2*). If the lock is removed from the door, keying is achieved with just a few steps. The first method assumes you have a working key.



1. Weiser A500 and A530.



2. Weiser picks only to the right.



3. Pulling shaft away from body.

1. Pull the square shaft away from the body of the lock, (*photograph 3*).

2. Turn the key to either the 4 o'clock, (*photograph 4*) or 11 o'clock position, (*photograph 5*).



4. Key at 4 o'clock.



5. Key at 11 o'clock.

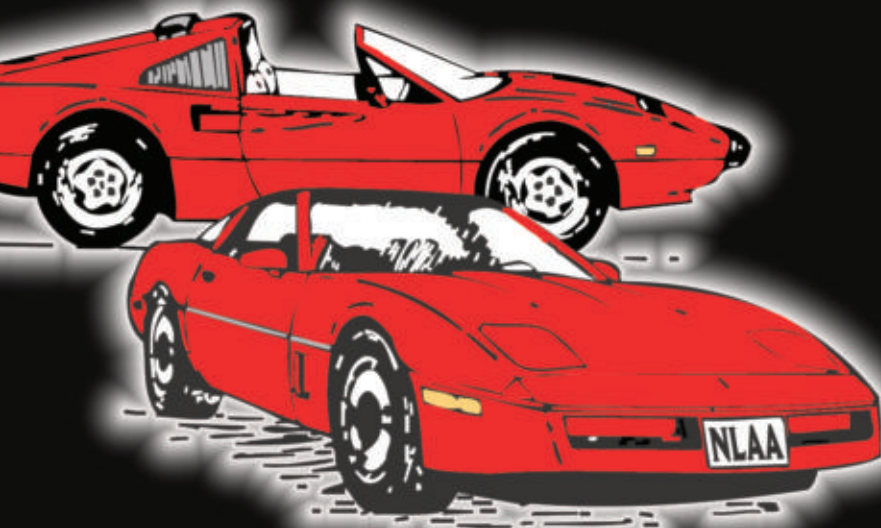


6. Pulling the cylinder from the body.

3. Pull the cylinder out of the body of the lock, (*photograph 6*).

4. Remove the key from the cylinder.

5. Remove the retainer from the back of the plug, (*photograph 7*).



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7. Removing the retainer.



8. Turning key 90 degrees.

6. Insert the key and turn 90 degrees, (*photograph 8*).

7. Push the plug from the body of the cylinder with the follower, (*photograph 9*).

8. Remove old pins.

9. Check the bible for stuck pins, old master pins and weak springs, (*photograph 10*).

10. Insert new key into plug.

11. Install new pins in correct chambers.

12. Replace plug in body of the lock, pushing the follower out.

13. Replace the retainer on the back of the plug, (*see photograph 7*)

14. Test the key, removing it and reinserting it several times.

15. Turn the key to 11 o'clock, (*see photograph 5*).

16. Pull the square shaft away from the body of the lock, *see photograph 3*.

17. Insert the cylinder into the body of the lock, (*see photograph 6*).

18. Seat the square shaft into the back of the plug-when



9. Push the plug out with the follower.



10. Check for stuck pins.

properly seated, it will not turn without the key turning. It will drop in about 1/8".

19. Check the operation of the lock. The lock will often need to be lubricated to work smoothly. The main point of lubrication is where metal rubs on metal in the inner knob locking area, (*see photograph 11*).

20. If you are installing the lock on the customer's door, it is critical that you have the A530 in the locked position before installing the lock, (*photograph 12*). Failure to do so can, and probably will, result in not being able to lock it. The mechanism must be timed correctly and turning the button to the locked position before installation does that.

All of this might sound like it will take a long time to do but once you have the steps down pat, you will be able to rekey a Weiser in less than one minute if you have a working key in the beginning.

If you do not have a working key, the procedure is much the same but you will first have to be able to open the lock, either



11. Points to lubricate.



12. Must have the A530 inner knob in the locked position.



13. Tension wrench and pick.

by picking it open or some other method. I will cover several methods I use in the field and you can use the ones you prefer.

Of course, the most common method is picking the lock with a turning wrench and pick, (*photograph 13*). This method requires the most skill and will necessitate your practicing a great deal before becoming proficient with the method. As I stated in the first part of this series, the choice of picks is a very personal decision and one that will only come with practice and experience. There is no best pick or magic pick, nor is there a wrong or bad pick. Use them all and decide for yourself.

The method I prefer if the lock is off the door is what I will call

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14. Shaft on the back of the lock.



15. Vise.

the tension on the shaft method, (*photograph 14*). This method requires that you have access to a small vise and that it be mounted to your counter, (*photograph 15*). I simply insert the shaft into the vise and squeeze it snugly enough to be able to pull on the lock and have the shaft remain in the vise, (*photograph 16*). With the shaft still inserted into the back of the plug, turn the body of the lock counterclockwise with a gentle touch, (*photograph 17*). Pick the lock as you ordinarily would while maintaining slight pressure on the knob. When the lock picks, turn the knob back until it is almost square with the shaft, (*photograph 18*). This is necessary to be able to pull the shaft out of the back of the plug. Pull the shaft from the plug, turn the plug clockwise to the 4 o'clock area and remove the cylinder from the body of the lock. Now proceed with steps 5 through 19 above.

A third method for opening a Weiser is called the rap method. This is the method used by many hardware store personnel because they don't have the skills necessary to pick the lock. This method utilizes the same laws of physics that we are all familiar with when we see a line of balls hanging from a rack. When one



16. Shaft secured in the vise.



17. Place counterclockwise pressure in the body.



18. Turn knob back to almost square with the outer shaft.

is pulled away and allowed to strike the others, the ball on the opposite end of the stack will bounce away. It is a simply law of transfer of energy but it works to open Weiser locks.

Let's take a look at how it works for us. To proceed with this method, you will need a medium length and strength rubber band, (*photograph 19*) and a key cut to a 9 depth in all positions, (*photograph 20*). Insert the key into the cylinder and place the rubber band through the hole in the head of the key, (*photograph 21*). Slip one end of the rubber band through the other end and tighten the "noose" around the top of the key, (*photograph 22*). Place the rubber band around the head of the key in such a manner as to exert pressure in a clockwise direction, (*photograph 23*). Attach the end of the rubber band over the post of the body of the lock, (*photograph 24*). Adjust the



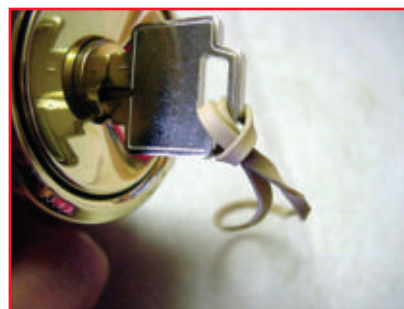
19. Medium rubber band.



20. Key cut to all 9 depths.



21. Slip the rubber band through the head of the key.



22. Make a "noose" over the head.

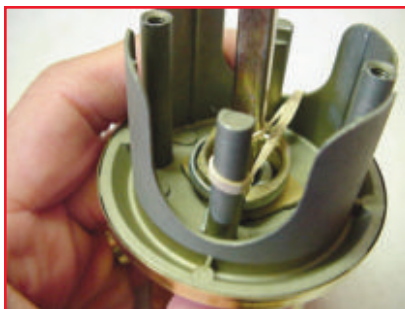
tension of the rubber band so a slight pressure is on the head of the key. Now turn the lock over so the pins are facing downward, (*photograph 25*), and rap the knob on your bench, (*photograph 26*). It goes without saying that you do not hit the knob on the bench with such force as to bend the material of the lock. If the lock does not open with a couple of raps, adjust the tension of the rubber band until you achieve success in open the lock. Watch the key in the body of the lock as it will



23. Exert pressure on the head.



26. Rap the knob on a hard surface.



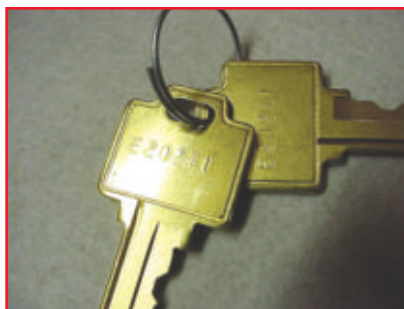
24. Attach the rubber band to the post.



25. Face the pins downward.

tend to slide out and will break easily if you have too much tension on the rubber band. If it starts to bend, replace the key with a new one. I have found that brass blanks are often too weak to do this method and prefer to use nickel silver blanks whenever possible. When the lock turns, you will have to return the plug to the same position I spoke of in the previous method so you can pull the square shaft free of the plug.

I have found it to be to my advantage to keep the factory cut keys from Weiser so I can use them in locks I will need to rekey and not have to cut my own keys. The fact that the cuts of the key are stamped on the head of the key makes them very easy to use, (*photograph 27*). If I have two new locks keyed alike that have been rekeyed I will keep both sets of keys together so I have four keys for a customer requesting that number.



27. Original Weiser keys with cuts on the head.

The same company once owned Weiser and Falcon so the methods of rekeying are often the same. They also used the same dimensions for cutting keys so the pins used to key their respective locks are also often the same. Both Weiser and Falcon use depths 0 through 9. The pins needed to rekey Weiser locks with a .003 pinning kit are as follows:

No.	Bottom Pins	Master Pins
0	.168	
1	.186	
2	.204	.036
3	.222	.054
4	.240	.072
5	.258	.090
6	.276	.108
7	.294	.126
8	.312	.145
9	.330	.160

Due to the space between the plug and the bible of the Weiser lock, you should never use any master pin less than a number two when master keying these locks or any Grade 2 lockset for that matter.

Next month I will cover Kwikset and Schlage A series locks. Each brand of lock has its own little quirks and it helps to know them before going into the field to do a job. **TNL**



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THE Lighter SIDE

Memories



Convention time again—time to grab your bags, pack the car or hop a plane for Chicago, and brush off your memory for the names and faces of fellow locksmiths you see only once a year, if that often.

I guess everybody has trouble remembering one thing or another, from time to time. With Don, it's where he puts things. With me, it's names. For some strange reason, I have little trouble remembering the color of a dress or necktie somebody wore to a party ten years ago, the topic of our conversation, the most minute details about them, but their name? Not a chance. It's as if somebody sneaks up behind me and pushes the delete button in my brain when I'm not looking.

I've tried all the little tricks they tell you to do, like calling them by name several times during the conversation, introducing them by name to other people—preferably to someone whose name I do remember or can at least get reasonably close to right. I sometimes try associating the name with one of their physical features or with a ridiculous mental image that I'm not apt to forget. Nothing works. Sometimes I manage to remember their name until they're out of sight, only to have it slip out the door with them.

It seems the only people's names I remember forever are those whose paths I never cross

again. Then I can play the game of "Whatever happened to..." a couple of years down the path.

At my recent high school class reunion, perfect strangers kept approaching me, reminiscing about all the good times we'd had "back when." One of my former classmates, whose name escapes me, greeted me with a hug and confessed that he had a terrible crush on me our senior year. I must admit, he looked vaguely familiar, but his name? Beats me.

Don has a system that works for him. He tries to get a business card from everyone he meets and jots down the date, occasion, and some little detail on the back to help him remember who they are when he goes over the information later. This doesn't work so well for me. Have you ever tried carrying around a couple hundred business cards and sorting through them in an attempt to find the right one while carrying on meaningful conversation with someone whose name eludes you? I even tried organizing cards into books with little plastic sleeves, but I never could figure a way to carry the stack around so I would have them when I needed to look up somebody's name. I've been tempted to simply call everybody "Darling," the way they seem to do in Hollywood, but I can see the possibility of problems with that, too.

Memory comes in all sorts of packages. I'm getting to the age where I can begin to blame memory glitches on impending Alzheimers or, as Don and I say, "Partz-heimers," since our problem is far from a full-time one. One of the grandchildren recently asked me, "Just how old are you, Grandma?"

I stopped to think a minute before I answered, and was reminded of something I saw on the Internet recently—a list similar to one a friend of ours had compiled several years ago.

"Well, let me put it this way," I said, "I'm old enough to remember when there was no television, or microwaves, or air conditioners, or dishwashers; no tape decks, CDs, electric typewriters, FM radios, or computers; no McDonalds, Pizzas Hut, instant coffee, or frozen TV dinners; no pantyhose, no Frisbees, no ballpoint pens or Xerox; no credit cards, no radar, no big shopping malls, no plastics of any kind, and no cars with automatic transmissions.

I remember drive-in movies, The Shadow and Inner-Sanctum Mysteries and The Lone Ranger on the radio, eleven-cent gasoline, Coke in small bottles with the name of the town they came from made into the bottom, and Dixie Cup ice cream with a "collectable" movie-star's picture inside the lid. When I was a kid,



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"I remember the first security-surveillance cameras in a city of 150,000 population, and my first very-own car was a little 2-door Plymouth coupe that cost \$250.00."

Don can remember when electricity and indoor plumbing came to the rural area of the Texas South Plains, where he grew up. Some of the people about our age who live there tell

me their parents came there in covered wagons, and they can remember living in dug-out houses in their early lives. Don remembers the only lock around the family farm was a padlock his father finally attached to the gasoline pump near the barn, to stop unexplained "evaporation" of fuel from the pump.

Farmers and ranchers in our part of the country have gradually become accustomed to locking gates—more to keep their livestock in than intruders out. But times are changing. Burglaries, thefts, and forced entries of homes and businesses are escalating all over the country, and people are seeking better security measures. As a result, locksmithing has become a growth industry with a vast array of new products, new methods of doing things, and new terminology in a world of increasingly high-tech information and equipment. That

means keeping abreast of the changes as they happen, or quickly falling behind.

If you intend to survive in this world, you must weather the changes and come out on top. The best way to do that is to keep abreast of innovations in the field and incorporate them into your daily practices. Your local, area, state, and national locksmith organizations and publications are there to help you.

Some day, today's youngsters may be saying to their peers in the presence of astonished grandchildren, "Man, I just paid \$200,000.00 for my new car. Why, I can remember, my first car only cost me \$25,000.00." But then, someday those same kids may be flying around in hover-craft and opening doors and windows with retina-scan technology. I wonder what they'll call "locksmiths" then? **TNL**

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Safe Opening Party



by
Dale W. Libby,
CMS

When you open and attack safes with other safecrackers, it's a blast. In this article I am going to introduce you to two fellow safecrackers and a couple of new tools.

My fellow safecrackers are Mark Gerhardt of Mobile Vault Service Inc. and Jose Cantu of JC Safe & Vault Service, Inc. They specialize in bank work for large conglomerate banks and savings institutions. They see many types of equipment that I do not, including commercial outside ATM's.

Mark called me for a mini safe opening party he was having. He had a number of safes to open one cold and wintry night in January in the factory warehouse. This article will highlight only three of these units and the tools we used to accomplish the task at hand.

The first safe was labeled coin, #5. It was a small box with a Sargent & Greenleaf dial and ring with the handle on the lower left side of the door, (see [photograph 1](#)).

This was an unknown safe, but it did not matter. When attacking the safe lock it doesn't matter what the manufacturer of the safe is.

We were also not sure what the handing of the lock was, but that didn't matter either. If the place we drill does not have a direct view of the lever fence and gates (provided we drill within the lock case), we will transfer the readings to the correct location. Handing is not important. It only makes it easier to open a locked safe when the handing is positively known.

The second safe was a large LeFEBURE bank type depository money chest with a LaGard electronic swingbolt lock. The first safe was stacked on the second safe. In [photograph 2](#), you can see the LeFEBURE unit with the bottom of the smaller #5 coins safe on top of it. Let's do these safes first as long as they are together.

[Photograph 3](#), shows Jose trying a quick manipulation of the S&G lock. He determines that there are three wheels in this lock, but could not get any accurate readings on any of the wheels. Looks like a drill job to me.

The first tools that we will use are good borescopes. [Photograph 4](#),

shows one of Mark's gun cases that he uses to hold scopes and light sources. We will be using a Hawkeye Super-Slim scope that fits into an 1/8" hole easily for two of the openings.

In [photograph 5](#), we see a close up of the dial and handle before the dial is pulled with a Lockmaster dial puller. After the dial was pulled and the dial ring removed, the handing of the lock was apparent by what we saw under the dial ring, (see [photograph 6](#)).

Continued on page 72



1. Coin Safe with S&G combination lock.

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Circle 328 on Rapid Reply



2. LeFEBURE Depository safe with LaGard Electronic swing bolt lock.



3. Jose A. Cantu tries manipulation on the small coin container.



4. Some of Mark's scopes in a padded gun case.



5. Getting ready to remove dial to determine handing of the lock.

It may be hard to see, but there were the ends of two 1/4" case screws at about 5:00 and 7:00 o'clock about 1-1/2" from the center of the dial. By placing a template or actual lock body to the safe door, you will see how easy it is to determine handing and where to drill. This lock bolt was facing vertical up (VU).

Mark made a small pencil mark at about where number 23 would be on the dial about 7/8" from the spindle. He drilled a 1/8" hole with a battery-operated drill and was into the lock case in less than a minute. In *photograph 7*, we see him using a micro-borescope to view the wheels and gates, exactly under the fence. I was really amazed by the great field of view the small Hawkeye scopes afford to the safecracker.

Another minute went by and the safe was open. In *photograph 8*, the back cover has been removed and we can see the mounted lock clearly. The bolt of the lock when extended obstructed a welded bar extension on the upper horizontal bolt bar. This kept the safe locked.

In *photograph 9*, notice the old type lock lever and that there is no internal relocking trigger or external relocking device.

Just below our coin safe was a large LeFEBURE depository. This is shown in *photograph 10*, along with a magnetic template from Lockmasters. The template is for the LaGard swing bolt lock. Both Mark, Jose and I, have opened many of these units, so we knew that the lock is mounted vertical down. To verify this, I removed the keypad and looked at the cable coming through the spindle hole. It came from the top of the hole confirming our thoughts that the lock bolt was mounted vertical down. We also knew that this type of safe incorporated a Ball Bearing Matrix (BBM).

We had several options for opening this unit and luckily we



6. Dial and ring removed. Two lock mounting screws visible.



7. Mark uses a Mini-Hawkeye super slim scope to view gates & fence.



8. Lock mounted vertical up.

would not have to drill through the BBM. Mark has had luck drilling down to the ball bearings, and then drilling through the small space between the bearings. If that did not work, then we would have to use a Ball Buster from StrongArm and wooden plugs to get through the bearings. Another possibility would be to glue the matrix with 15 minute Epoxy, let dry, and then either use a StrongArm bit or the ball buster to



get through. None of these options sounded like fun, so we took the easiest option of drilling through the side of the safe for the solenoid pin. It's a straight-forward trouble free operation with a Baby Bux drill press and Metabo drill motor.

I removed the keypad from the safe. The first thing Mark did was

put masking tape on the side of the safe door. *Photographs 11 and 12*, show a broad view of the door and a close-up of our inscription. It is easy to tell the depth of the lock with an electric lock and cable. Just shove something down the spindle hole to the side of the lock (not the cable channel itself) and measure. This was the first vertical line. The top horizontal line is the center of the spindle hole brought around to the side. We then used the magnetic template's side view of the electronic lock to

determine distance back from the bottom of the lock and distance down from the spindle. This location is marked with a small star.

In *photograph 13*, Mark has attached the Baby Bux to the side of the container and is drilling with a 1/8" drill. The Baby Bux and Quick Release Plate was purchased from Bob Stabely at Los Angeles Safe & Vault. Bob can be contacted at: 1-800-4LA-SAFE or www.safecrackers.net.

Mark has removed the Quick Release plate to put a long 1/8"

9. Cover removed. No relockers. Mounting screws are slotted (not Phillips).



10. Lower safe with magnetic template of LaGard Swing Bolt.

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drill bit in, (*see photograph 14*). In *photograph 15*, he has resumed drillings down the original hole. This along with the Metabo drill made drilling the hole child's play. We kept checking our progress until the Hawkeye scope showed a perfectly drilled hole and a beautiful solenoid pin side view. The hole could not have been better.

With Jose on the handle, Mark inserted a small wire with a chisel point into the hole, (*see photograph 16*). He jiggled the wire and Jose turned the handle up. The LeFEBURE was open with only an 1/8" hole in the side of the safe to show that we had been there. *Photograph 17*, shows a view of the Hawkeye Super

Slim scope attached to a light source from Ken Doyle at www.Advancedsafe.com. *Photograph 18*, shows the door in the open position. Whew, it almost takes longer to write about these openings that it does to do them in the field.

This safe was equipped with a dual time lock movement. The lock mounting and time locks can be seen in *photograph 19*. A very clean opening with no ball bearings to defeat. The swing bolt lock is shown in *photograph 20*. Just above the solenoid on the land is a perfectly drilled 1/8" hole.

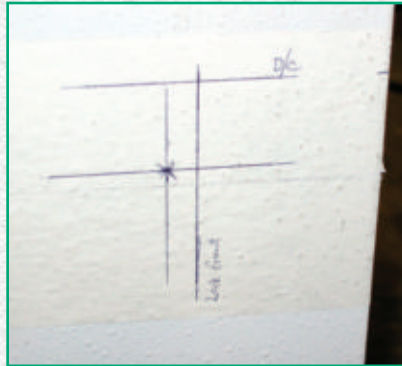
Mark kept bugging me by saying that any hole larger than a 1/8" was wasted. A "Dale" sized hole was anything bigger than 1/4".

On to the next safe. Mark was forced to drill a 3/16" hole

Continued on page 76



11. Masking tape on side of LeFEBURE SafeBusters.



12. Close up of measurements, lock and solenoid plunger marked with star.



13. Jose & Mark attach the baby BUX with 1/8" drill bit.



14. Lock can be viewed without removing Baby BUX.



15. Long 1/8" drill bit easily attached to the METABO 1/2" drill motor.



16. Using a small wire Mark jiggles the solenoid pin. Jose works the handle.



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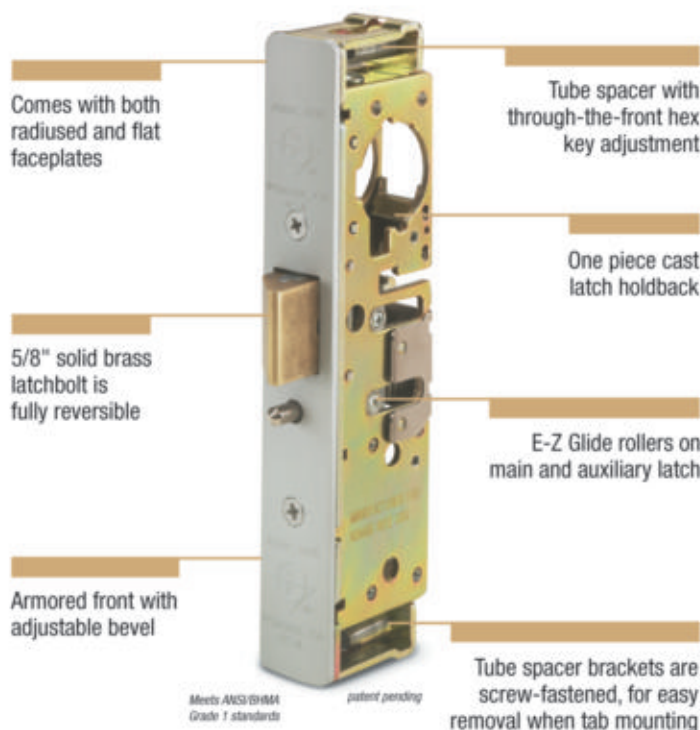
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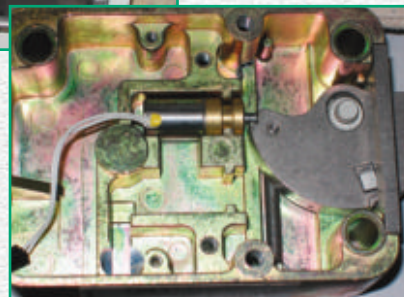
**17. Hawkeye
super slim scope
and Du-Lite light
source.**

**18. LeFEBURE
door opened.
Handle rotates
CCW.**



**19. Lock and time
locks on the
LeFEBURE door
(BBM) Ball
Bearing Matrix.**

**20. 1/8" hold can
just be seen
above solenoid
pin plunger.**



because of an obstruction due to a sheet metal screw that held the back cover plate to the door.

Finally, our last safe before we take a break. There were no markings and we were not positive of the manufacturer, but it had been drilled from the side before with a Dale sized 1/2" hole. It was drilled and repaired by welding, but in fact, it was too high to view the change key hole. We decided to use our own measurements. The side of the safe is shown in [photograph 21](#). We measured for an S&G key change hole 1/2" above the spindle hole. How far back do we drill? Jose has an interesting formula for that.

First, we inserted a business card between the door and frame and marked it flush with the door. This told us that the door was 1-1/2" deep. We then added 5/8" for any mounting plate and hardplate, and then 1-1/8" for the thickness of the lock. This is the precise point marked on the





masking tape. I wondered why he had been so precise. He stated that a lot of older banking equipment did not have change key holes on the back cover (like on some gun safes).

For this attack, we could have used the Baby Bux, but I wanted to use all the toys (tools) that Mark brought with him. This time I opted for the StrongArm vacuum rig with the attached drill press lever. This is shown in *photograph 22*. We used the same Metabo drill motor that we had used on the magnetic drill press. StrongArm can be reached on the web at www.StrongArmdrills.com.

21 Side view of Gary depository and measurements for an S&G combination lock mounted (VD).



22. Close up of StrongArm Vacuum rig with drill press.

23. Mark drilling the Gary type depository with the vacuum rig. (3/16" drill).



At last we get a look at the front of the safe while Mark is drilling, (*see photograph 23*). The lock is mounted vertical down above the handle. Once through the side of the safe, we went through the wall of the safe door. The hole again was perfect, (*see photograph 24*.)

With one person turning the dial, one person viewing and taking readings, only a few minutes were spent until the safe door was open. We removed the large back cover plate and sure enough, there was no hole for any change key to be inserted into the lock. We also discovered what that large (Dale sized) 1/2" hole was drilled for.

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24. Hole drilled above bolt below back plate to view change key hole.

25. Previous opening destroyed relock pin and time lock attachment.



26. Jose measures with square for change key hole location on back plate.



27. Measuring on the solid back plate to drill change key hole access hole.

Apparently at one time, the safe was burglarized and the dial punched. The safe technician had to drill into the side of the safe and door to pound away the relocking pin, safe lock, bolt bar and snubber bar. This area was smashed, shattered, cracked, and damaged, (*see photograph 25*).

In *photograph 26*, Jose is using a square to determine the position for a change key hole in the back cover plate, (*photograph 27*).

Thanks Mark and Jose. It was fun. I got to play with tools that I do not own, and if I were younger... Anyway, Open safes with friends, and Prosper. **INL**

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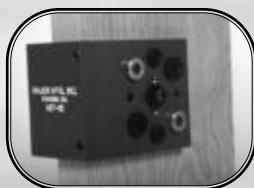
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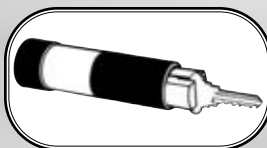
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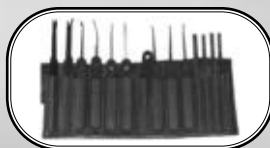
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Paper Chase Solution

Have you ever wondered where a certificate you earned might be? Not quite sure if you attended a certification class already? Have the walls in your office been wallpapered with all of your certificates? Here is a tip that is not just useful to locksmiths.

The other day when I was at the local office supply store I happened upon a product called sheet protectors. For those of you who do not know what these are; they are clear thin plastic sleeves for 8.5" x 11" sheets of paper. These sleeves are designed to fit into a binder. I bought a box of medium weight sheet protectors, a binder, and, of course, the printer paper I was originally there for.

When I arrived home I spent the better part of the afternoon hunting down all of my certificates. I started by placing each one in its own sheet protector.

After all my certificates were in the order I wanted them in the binder, I fired up the old computer and began typing them into a list format, arranged as they are in my binder. You can make yours as plain or as fancy as you want. When you are done, you have all of your certificates in one place, neatly organized and listed. The nice thing about doing your list on the computer is you can go back and edit or insert more certificates later, and the list now makes a nice addendum to your résumé.

*Elliott Paul Connor, CPL
Virginia*

A Few Words From Jake...

As most of you are aware, the magazine is a couple of months *ahead* as far as production goes. That is this issue (August, 2005) will be put to bed in June.

We need that lead time to get all the information together and layout all the photographs and do the *zillion and one* other things that it takes to make *The National Locksmith* magazine your magazine of choice. Which means that this Technitip article is being written in June, as well. I tell you that because I want to clear up some speculation about my health, my seminars and me.

The first of the year, my back finally (after many years of aggravation) decided it didn't want to play any more and "went out". Way out! Simultaneously, I developed some cardiac complications as a result of the flu and so, Mother Nature sort of slammed me.

The cardiac problems (as such problems go) were minor, but complicated the back problem by prolonging my ability to have an operation. Well...in about a week (If all goes well) I will go into the hospital and have the damaged disks and vandalized vertebrae "fixed".

So by the time you get around to reading this (in August) I should be back up to speed and doing all the things I love to do.

While I'm recuperating, my son will be updating PureJake.com and will have new seminar schedules posted.

And, although I have been circulating on a very limited schedule, I've still been yacking with manufacturers, manufacturer reps and a number of "players" in the industry. As a consequence of that "schmoozing" I have some new and exciting products and information to talk and write about.

So, stay tuned and don't pay any attention to the rumors. As Mark Twain once said: "The rumors of my death are greatly exaggerated".

See y'all next month....



**by Jake
Jakubowski**

Cylinder Turning Trick

This is an old trick I learned from my father, who is now retired. If you pick a cylinder the wrong direction, you can "flip it", but, what if you can't find your quick flip tool?

Easy!

Just take some cotton string, (kite string works great), and stuff the keyway using a pick. Pack it rather tight. The string will keep the tumblers at the shear line, and using your tension tool, turn cylinder to the unlocked position.

*John Walls
North Carolina*

Silence on Demand

I recently installed a multi-camera surveillance system that was motion activated. I used the Everfocus #8BQ Quad Processor to allow four cameras to be shown on the monitor at the same time.

When everything was hooked up I realized that the built-in buzzer in the processor would sound every time motion was detected. This was not acceptable for the job and there was no turn off switch.

I disassembled the processor hoping to cut a wire, but the buzzer

was soldered directly to the circuit board. I was afraid that trying to desolder it could negatively affect surrounding circuits.

The buzzer had a little hole in the top so I inserted a tiny screw in the hole and gently tightened until the buzzer was silenced. Removing the screw allows the buzzer to work again if you have a need to change it back to original condition.

*Michael Spencer
Ontario, Canada*

Safe Drill Template

To make an accurate drill hole for most gun safes, take a 6" by 7" piece of 1/4" thick steel plate. Using a dial ring and dial from an S&G lock, drill holes to mount the dial ring on the center of the plate and tap the holes 8-32 and attach the dial ring with 8-32 machine screws.

Next, mark the center of the spindle hole, and then remove the dial ring. Drill a 1/2" hole for the safe spindle. Using the dial as a guide mark 72 and 22 with a punch outside of the dial and draw a line between those punch marks. Remove the dial and measure from the center of the dial spindle hole 7/8" out on the line marked 72 and center punch that location. Now drill the mark at 72 with an 11/64" drill bit through the plate, (figure 1).

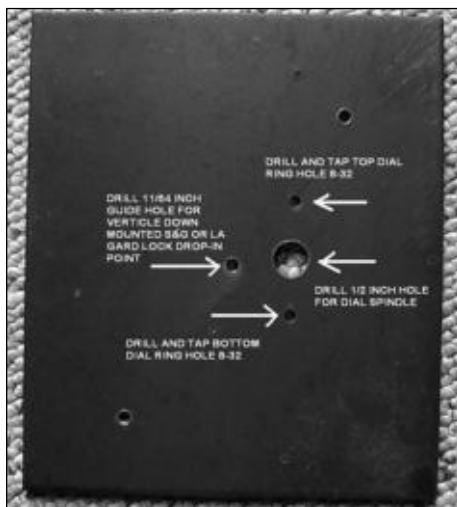


Figure 1.

You have to pull the dial and remove the dial ring, and then attach this template. This will give you an accurate starting hole for the drop-in point for most gun safes, including the new Sentry Safe with a Group 2 LaGard lock and many others. I have used this template on many safe openings and it has been right on every time.

*Dave Boerner
Idaho*

Aluminum Stile Door Repair Tip

My very first call this morning was at a bank where someone got over enthusiastic with the door. They managed to over close the double door (clear vandalism) to the point where the latch from the active door was resting on the inside of the stationary leaf. This caused so much pressure that the bank employees could not unlock the door to gain access, (figure 2).



Figure 2.

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I should've taken a before picture, but I didn't think of it right off the bat, and the bank employees needed to get to work.

Surprisingly, there was no hardware damage, so I installed a latch protector, billed them, and was on my way.

*Dave Rider
Ontario, Canada*

GM Snap Ring Tip

Here's a neat trick I learned on General Motors steering columns.

After compressing the lock plate, it is not easy getting the snap ring off. I found that the ring could easily be removed by using HPC Tru Arc snap ring pliers. They are small enough to fit in the open space of the ring.

When you squeeze the handles it will open the ring so you can pry up on it to release it from the groove. Hopefully this tip will help other locksmiths.

*Doug
South Carolina*

Removing Stubborn I-Cores

Many times I find that the proper control key won't take out a Best I-core even when cut to the proper depths.

My usual procedure is to spray a generous amount of LPS-1 greaseless lubricant, wait two minutes, try the control key again with vise grips for additional leverage, however due to accumulated dirt and core age this method also fails at times.

My next option used to be to drill the core out, remove and replace it. Drilling can be a messy business and the core will be destroyed so I have devised a new method to remove the core.

Flush the core out thoroughly with your favorite lubricant and insert a control key cut to the proper depths into the core.

Take a punch with a pointed end on it, place it on the middle part of the plug of the I-core on the left side of the key.

Angle the pointed part of the punch upward and to the right and give the punch a couple of forceful hits with a hammer.

This will put extra turning pressure onto the plug. The combination of pins near or at the control shear line and the extra turning pressure from the punch will provide enough force to allow the control lug to move. This method has worked 100% of the time for me so far and provides one with an easier and less messy method to remove stubborn cores for replacement.

*Mike Sardo
Ontario, Canada*

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Brass Blank Substitutions

I had a lock with a steel key broken off in it and it was rusted. I had to open the lock to remove the key. I then scribed and filed one from a piece of steel. I reassembled the lock and it worked fine.



Figure 3.

Not owning a steel key cutter at that time I got to thinking there has to be a brass key that can do the same job. After a short search through auto key blanks, I found that the B91-PH would fit in this particular lock, (figure 3). I went ahead and duplicated the steel key onto the B91 and it opens it like it was an original key.

*William J Bernardini
E-mail*

Key Machine Adjustment Test

Knowing when to adjust a key machine for me was often a matter of guesswork and blind luck. I decided to come up with a way to "test" the machine periodically without the necessity of using a micrometer every time I wanted to check the machine.

I used three cylinders (Mortise, KNK or rim is immaterial and used ones are fine) and keyed them accordingly.

One cylinder was pinned to a factory-cut key. The second one was keyed with pins that were .003 or .005 longer than the factory specs. The third key was pinned with .003 or .005 shorter pins. I marked the cylinders accordingly so that I could keep track of them when I used them.

Then, I'd simply take a standard uncut blank, duplicate it

on the suspected machine (Using the factory cut key to dupe). Then by trying that key in all of the cylinders it was easy to see if the machine is cutting too high or too low.

*Joel Snell
New York*

Lumina Glove Box Tip

I was called to make a door/trunk/GB key to a 1995 Chevy Lumina using an H keyway. This glove box lock was slightly different than other GM

glove boxes and I could not get the plug to come out.

I started to sight read the wafers and while doing so decided to see if the shear line was visible from the rear. Not only was it visible, but so was the number stamped on the last wafer. Push up each wafer, read the number, and the glove box cuts are yours!

Progress as usual for the door/trunk.

*Adrian Slater
Virginia*

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Prescription For Spray Can Safety

I always carry a small spray bottle of WD40 in my toolbox and have always had a problem with losing the little red spray tube and worrying that the top would come off and something would press the button and start it spraying all over my tools. (Ok for the tools, but messy for me.)

I recently found they make a large pill bottle in just the right size to hold the entire small can. Just stop in to your local pharmacy and see if they will sell you one. They cost very little, if anything, and can save you from a mess.

*Ted Swirsky
New Jersey*

Turn It Over! A Key Reference Tip

I developed this incomplete list of popular key blanks that have a sister blank, which is the exact reverse.

There might be a couple typos or discrepancies, but in general if you see a key blank that looks familiar but has the exact opposite or reverse milling, sometimes called a mirror image, you may be able to find the proper blank here.

Nomenclature is Ilco #174 long line and EZ line numbers. The reverse sectionals list is of multiplex families by OEM section, as there are often many variations found in these series of the same section with different pin lengths and bow shapes etc., (figure 4).

*Peter P. Schifferli
New York*



Reverse Millings

AR1	RU4/1011P	CO17	X1001FR	H997ER	H997E	1079B	1054F
BO1	C106/1003M	X21	YS2	1001EG	CO62/R1001EG	1092	1092R
DC1	T61C	X22	YS1	A1001EH	A1001EHR	1092N	M16/1092NR
MIT1	TR40/X174	M25	M24/X4	1001EN	CO62/R1001EG	1092NR	M10
PZ1	1092R	TR25	62DT/X6	1001EN	SK1/R1001EN	1092R	M1/1092
S1	S4/O1010	X26	X27	R1001EG	CO7/1001EN	1092R	PZ1
SE1	RU4/1011P	X27	MZ9/X26	1001GA	R1001GA	1092VA	M3/1092VR
SK1	CO7/1001EN	TR33	DC3/X121	A1001EHR	A1001EH	1092VR	1092VA
YS1	YS2/X22	CO36	CO62/R1001EG	R1001GA	1001GA	K1122N	CG17/1041Y
CG2	1041GR	TR40	MIT1/X176	1000F	X1001FR	O1122	O1122R
K2	1054F	TR44	MIT1/X176	1001JL	1001JR	O11422A	Y14/O1122AR
VR2	VR91R	H50	H51/1176FD	1001JR	1001JL	O1122AR	Y12
YS2	YS1/X21	H51	H50/S1176FD	R1001EG	CO36/1001EG	O1122B	1043D
DC3	TR33/X137	H52	H53/1181FD	R1001EN	CO7/1001EN	O1122BE	O1122BR
DC3	T61C	H53	H52/S1181FD	X1001FR	CO17/1000F	O122BR	O1122BE
M3	1092VA	X54	T61C	1003M	BO1/R1003M	O1122R	IN8/L1054B
MZ4	MZ5/X5	T61A	T61B	R1003M	CO106/1003M	O1122R	Y11/O1122
RU4	AR1/1179	T61B	T61A	1004	1004R	1131	1131R
S4	S1/1009	T61C	DC1/X54	1004A	1004AR	1131R	1131
X4	MZ5/X5	T61C	DC3/X121	1004AR	1004A	O1054K	O1054KR
MZ5	MZ4	CO62	CO7/1001EN	1004R	1004	O1054KR	O1054K
PO5	PO7	CO62	CO36/1001EG	1009	S4/O1010	1176FD	H50/S1176FD
X5	MZ4/X4	62DT	TR25	O1010	S1/1009	O1122R	L1054B
X6	TR25	64D	64DR	1011P	AR1/1179	S1176FD	H51/1176FD
X6	X7	64DR	64D	1011P	SE1/1022	1179	RU4/1011P
X7	X6	B65	X174	1041GA	1041GR	1181FD	H52/S1181FD
CO7	CO62/R1001EG	F91C	F91CR	1041GR	CG2/1041GA	S1181FD	H53/1181FD
CO7	SK1/R1001EN	F92C2	F91C8	1041Y	K1122N	1536	1536R
PO7	PO5	F91C8	F91C2	1041T	1041TR	1536R	1536
VR7	VR91A	F91CR	F91C	1041TR	CG16/1041T	1574	1574R
IN8	Y13/O1122R	VR91	VR91R	1043D	Y103/O1122B	1574R	1574
MZ9	MZ10/X27	VR91A	VR7/VR91AR	1054	1054R	1621	TM14/1622
M10	M16/1092NR	VR91AR	VR91A	1054R	1054	1622	TM13/1621
MZ10	MZ9/X26	VR91R	VR2/VR91	L1054B	Y13/O1122R		
Y11	Y13/O1122R	CO106	BO1/R1003M	1054F	K2/1079B		
Y12	Y14/O1122AR	X121	TR33/X137	X1054KF	X1054KR		
Y13	IN8/L1054B	X121	T61C	X1054KF	X1054KF		
Y13	Y11/O1122	X137	DC3/X121	X1054LF	X1054LR		
TM13	TM14/1622	X174	MIT1/X176	X1054LR	X1054LF		
NA14	R1069L	X174	B65/X184	X1055GA	X1055GB		
TM14	TM13/1621	X176	TR40/X174	X1055GB	X1055GA		
Y14	Y12/O1122A	X176	TR44/X211	X1055JK	X1055JR		
CG16	1041TR	X184	X174	X1055JR	X1055JK		
M16	M10/1092N	X211	MIT1/X176	1069L	R1069L		
CG17	K1122N	H997E	H997ER	R1069L	NA14/1069L		

Reverse Sectionals

Corbin	Russwin	N6	N20	59D1	62D1	LD	RD	GD	VD
A1	A13	N7	N21	59D2	62D2	LE	RE	GE	VE
A2	A14	N7-10M	N21-24M	67A	77A	LF	RF	GF	VF
A3	A15	N8	N22	67A1	77A1	LG	RG	GG	VG
A4	A16	N9	N23	67A2	77A2	LH	RH	GH	VH
A5	A17	N10	N24	67AB	77AB	LJ	RJ	GK	VK
A6	A18	N11	N25	67B	77B	LK	RK	GMK	VMK
A7	A19	N12	N26	67B1	77B1	LL	RL	SA	YA
A8	A20	N13	N27	67B2	77B2	LM	RM	SB	YB
A9	A21	N14	N28	68	78	LDH	RDH	SC	YC
A10	A22	N14	N28	69	79	LDM	RDM	SD	YD
A11	A23	27A1	67A1	Lockwood/Chantrell		LHM	RHM	SE	YE
A12	A24	27A2	57A2	L	LR	KMB	RMB	SF	YF
D1	L1	27AB	57ABC	M	MR	Schlage		SG	YG
D2	L2	27B	57B	N	NR	C	D	SH	YH
D3	L3	27B1	57B1	P	PR	CE	DQ	SK	YK
D4	L4	59A	62A	Q	QR	E	Q	SMK	YMK
D12	L12	59A1	62A1	R	RR	EF	QS	TA	ZA
D34	L34	59A2	62A2	S	SR	F	S	TB	ZB
D41	L41	59AB	62AB	T	TR	FG	ST	TC	ZC
N1	N15	59AD	62AD	U	UR	G	T	TD	ZD
N1x13M	N15x27M	59B	62B	V	VR	H	U	TE	ZE
N1-12M	N15-26M	59B1	62B1	W	WR	J	V	TF	ZF
N2	N16	59B2	62B2	X	XR	K	X	TG	ZG
N2-8M	N16-22M	59C	62C	Y	YR	L	Y	TH	ZH
N3	N17	59C1	62C1	Sargent		Yale		TK	ZK
N3-9M	N17-23M	59C2	62C2	LA	RA	GA	VA	TMK	ZMK
N4	N18	59CD	62CD	LB	RB	GB	VB		
N5	N19	59D	62D	LC	RC	GC	VC		

Figure 4.

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1. The dealer lost the keys to this brand new dual-sport motorcycle.



2. The ignition lock has positions for OFF, ON and LOCK (steering locked) positions.



3. Look up from under the right side of the ignition lock and you can see the key code stamped on the back of the switch. The code is A54091; the 3911 stamped to the right of it is not related to making the key. One of the two T30 Torx bolts that secure the lock to the motorcycle is visible on the left, and above it is one of the two Phillips screws that secure the switch to the back of the lock. You can disassemble the lock by removing the switch and depressing the retainer on the back of the plug.



4. The Silca YH28RBP on the left and the Ilco X120 on the right have cuts of 24244 and operate all three locks on the bike.

Continued on page 94

Jake talks about his new book...

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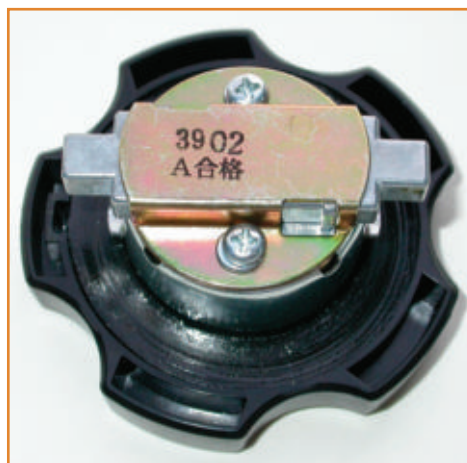
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5. The gas cap lock turns counterclockwise to unlock and the gas cap also turns counterclockwise for removal.



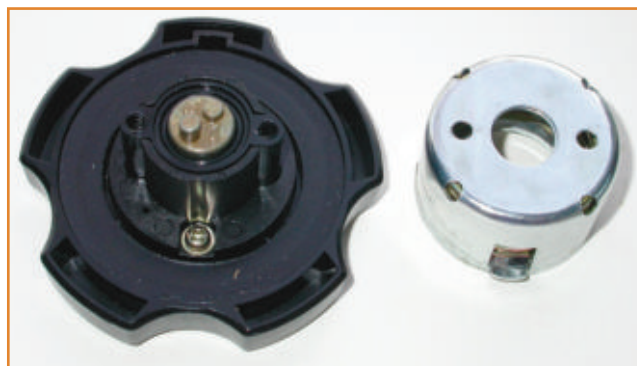
6. Remove the two Phillips screws that secure the bolt housing.



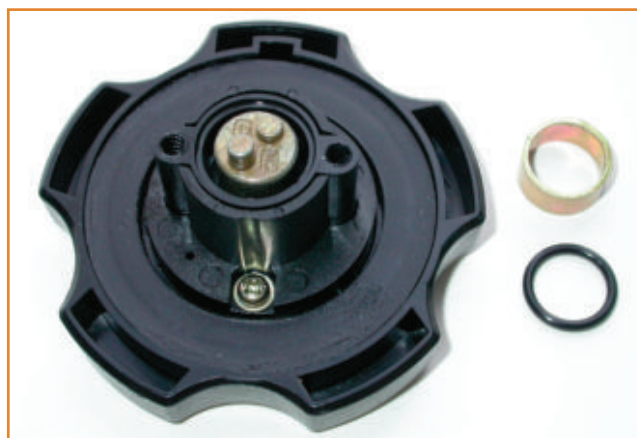
7. Memorize how the bolts and springs are positioned and remove them.



8. Remove the spring housing.



9. Use a dental pick to remove the o-ring from around the back of the plug. Then turn the cap over and allow the spacer to fall out.

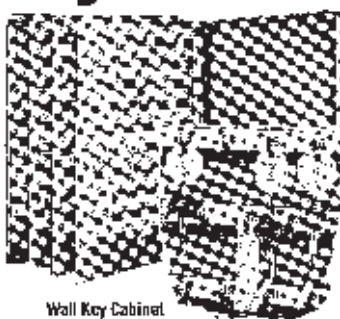


10. The O-ring and spacer have been removed.

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11. The retainer is visible on the upper side of the plug. Use the dental pick to depress it and push the plug out the front. Be careful and do not allow any wafers to fall or spring out.



12. The gas cap lock contains all 5-wafer tumblers and the wafer retainer. An X120 blank inserted into the plug shows the cuts are 24244.



13. The helmet lock is located on the left side of the motorcycle below the rear of the seat. It turns clockwise to unlock.



14. The helmet lock has been picked around 60-degrees clockwise to reveal the T30 Torx bolt that secures it to the motorcycle.

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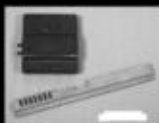
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15. The helmet lock has been removed. It requires a little bit of destruction to disassemble it so I left this brand new one intact. I managed to obtain a used one to disassemble.

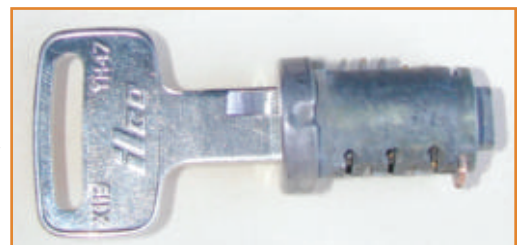
16. The backing plate can easily be pried off using a screwdriver.



17. Remove the backing plate, locking bolt, and tailpiece. Now the retaining wafer can be seen extending from the plug at the 2 o'clock position. Depress the retainer and push the plug out the front of the lock. Be careful not to allow the wafers to spring out.



18. The helmet lock contains all 5-wafer tumblers. This particular lock uses an X119 blank and the cuts are 44422. A search using key code software reveals the code as B32693.



19. When reinstalling the backing plate, use a spring-loaded center punch to flare out the staking post.



Codes: A, B, C, D, E, F32010-79897

Blanks by code series:

- A. Ilco X120 (YH46), Curtis YM57, Silca YH28R
- B. Ilco X119 (YH47), Curtis YN58, Silca YH28
- C. Ilco X117 (YH48), Curtis YM59 (SU10), Silca YH29R
- D. Ilco X118 (YH49), Curtis YM60 (SU11), Silca YH29
- E. Ilco YH50, Curtis YM61 (SU12), Silca YH30R
- F. Ilco YH51, Curtis YM62 (SU13), Silca YH30

Spacing: 1=.157, 2=.256, 3=.354, 4=.453, 5=.551

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THE NEED:

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To remove the cylinder, one must first remove the locking shaft and push the cylinder out. Some have mastered the art of removing the cylinder with two small screwdrivers and some use the tool provided by Kwikset, but both have their drawbacks.

The biggest drawback for both methods is that it is possible to push the tools too far into the body and bend the legs and even break them. Sometimes the tools will get stuck behind the legs and it is often difficult to apply pressure on both legs at the same time. A better method needed to be found to remove the cylinders.

THE ANSWER:

Rytan has come up with a better Kwikset removal tool with its RY-36 Cylinder Tool. This very simple tool eliminates the problems described above by creating the proper technique to remove the cylinder every time. This technique is created by the way the tool is made.

Like I said, this is a simple tool and it is simple to use as well. The tool is a round, hollow tube attached to a knob. Inside the tube are two flat blades held in place by two set screws slightly bent at the end where they stick out from the tube about $\frac{3}{16}$ ". The knob contains a spring that allows for movement of the blades when pressure is applied in a downward direction, forcing the blades out from the body of the tube.

Since the tube also has a stop created by a pin that extends from the tube, it can only be inserted in the proper position. It is impossible to put the tool in wrong.

USING THE TOOL:

After you have removed the locking shaft, simply insert the Rytan Cylinder Tool into the opening with the pins put into proper place by the turning shaft of the body of the lock. Slide the tool into the opening until the pins bottom out. Hold the body of the lock tightly and strike the back of the knob with the flat of your hand or on the counter. Excessive force is not needed since the tool has been placed in proper alignment by the way it is made.

When you strike the back of the knob, the energy is transferred to the blades and they are forced outward. They slide behind the legs of the cylinder and free the cylinder. It will pop out a short distance and you can then easily remove it to do the key work or whatever you need to do with the lock.

IN SUMMARY:

DESCRIPTION: A tool for the easy and quick removal of Kwikset cylinders.

PRICE: Around \$50

COMMENTS: A must for any locksmith that works on Kwikset 400 series locksets.

TEST DRIVE RESULTS: This tool works as advertised and is simple to use.

If you should find that you need to replace a blade, they are available from your distributor. I have not broken one, but I have found they get bent with continued use. It is nice to be able to get parts and not have to replace the entire tool. The bright red knob makes the tool easy to find and if your toolbox is like mine, that is a big help.

MY CONCLUSION:

I have used the Rytan Cylinder Tool for several years and have found the tool to be a valuable aid in the removal of Kwikset cylinders. It does a very good job with the import knockoff products as well. Care needs to be exercised when working with the import products since they are poorly made and the legs tend to break very easily.

Rytan has a good quality product with its RY-36 Cylinder Tool and I believe it should be in the tool box of every locksmith that finds Kwikset 400 series locksets in their working environment.

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